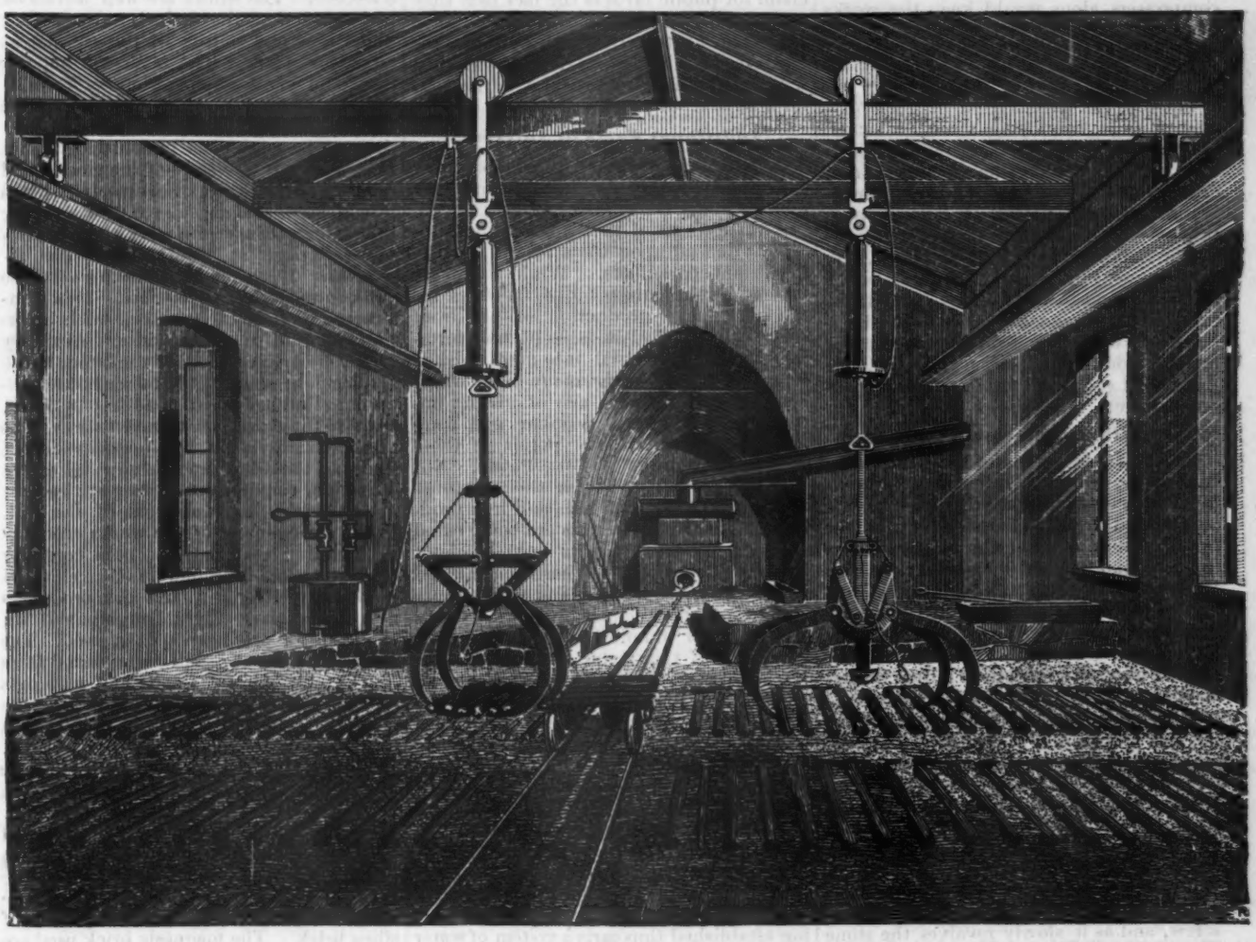
THE IRON AGE

THURSDAY, JUNE 12, 1890.

Apparatus for Removing Pig Iron from the Beds.

The ordinary method of removing pig iron from the pig beds by hand is an expensive one, and in hot weather it is often almost impossible to keep men at it and to have it removed in time to mold up for the following casts. Where four and six casts are made every 24 hours, it is often a serious matter. The apparatus illustrated has been brought out by Jerome L. Boyer, of Reading, Pa., to reduce this expense of from 10 to 20 cents per ton to about 1½ cents, and the usual time required from one to two hours, 15 minutes for, say, a 50-ton cast. Only one man and one boy are required to do this labor and need not touch the iron, hence it can be taken out as soon as it is cool enough that it does not run out of pig in a liquid or semi-fluid condition.



THE BOYER APPARATUS FOR THE REMOVAL OF PIG IRON FROM THE BEDS.

The construction of this apparatus is simple and not expensive. It will be observed that the cast house is commanded by a traveling carriage spanning its whole width and carrying two trolleys. Flexibly suspended from each is a cylinder, to the piston of which is attached a grappling device. Power is supplied from the steam-tight reservoir shown in the distance in our engraving. The pigs of iron are seized by the grappling device and are deposited upon the truck standing on a track running along the center of the cast house. In these times, when the production of ordinary furnaces has outgrown the capacity of cast houses, when the close competition in the trade makes it absolutely necessary that not only dollars but the pennies must be saved in every branch of pig iron manufacture, it would seem that such an arrangement is needed by producers.

Three New Battle Ships.

The three new battle ships provided for under an appropriation of $4,000,000 in the Senate bill which passed recently are in many respects similar to the Baltimore, Charleston, Newark and Cruisers Nos. 4 and 5. They will be 349 feet 2 inches long over all, 71 feet 6 inches beam, and 25 feet 10½ inches extreme draft. Each of these measurements exceeds those of our largest first class cruisers, though in the matter of speed the new cruisers will make 17 knots, while the Charleston, Baltimore and Newark have a speed of 18, 19 and 18 knots respectively. The new vessels will have 11,000 horse-power, while the Baltimore has 10,750. The hulls of the new ships will be practically unsinkable, the board designing them to withstand a severe riddling at the water line, and yet maintain a metacentric hight of 2 feet 6 inches. They are provided with a double bottom and water tight bulkheads longitudinal and athwartships. Their protection will consist of an armored deck 3 inches thick, each deck supplemented by a belt 5 inches thick extending the entire length of the ship. A belt of woodite 12 feet thick will protect the hull at the water line between the armor deck and berth deck.

The new ships will be fitted with two conning towers and two turrets. The forward conning tower will have 14 inches of armor and the after one 5 inches. The two turrets will also be mounted fore and aft, each covered with 16-inch armor on a 6-inch backing, with 1½ inches inside skin and 3-inch aprons in front of the ports. Ten 5-inch rapid fire guns are to be mounted on the main and superstructure decks, protected by 3-inch carbettes and 3-inch all-round shields. Twelve 6-pounder rapid fire guns and two 37 millimeter revolving cannon will complete the armament. The engines are practically the same as those of the 8150 ton vessels now awaiting bids.

The large iron ferryboat Whitehall, owned by the Union Ferryboat Company, of New York City, and to ply between New York and Brooklyn, was launched at the ship yard of Thomas Marvel & Co., in Newburgh, on June 5. The Whitehall is 209 feet long, 36 feet beam, 65 feet over guards and 15 feet deep.

The new side-wheel steel steamer City of Chicago, just completed at the Bay City shipyards, Mich., developed a speed of 17½ miles per hour on her first trip. She will run between Chicago and other points on Lake Michigan.

Fort Payne, Ala.

Its Manufacturing Industries.

(*Continued from page 943, June 5.*)

The Dustin-Hubbard Manufacturing Company.

The managers of this company are rapidly completing a machine shop which is to be well appointed in every respect. It is their purpose to enable the manufacturers of the vicinity to secure machinery or to have repairs made quickly and under their own supervision. At present all work of this character has to be sent a long distance to machine shops with facilities for undertaking it. The need of this establishment is shown by orders which have been booked before the shops are completed. The manufacture of cotton compressers alone would keep the works busy for months. George Parks is treasurer of the company.

The Fort Payne Stove Works.

These works were started in 1889 on a modest scale, employing some 50 hands. Their business is increasing rapidly, however, and the establishment bids fair to develop into a very important enterprise. Within the past month stoves have been shipped by the carload from Fort Payne to Cleveland, Chicago and Dubuque. T. A. Leveque, formerly of Cleveland, is the superintendent of the works. They make cast iron ranges, cooking stoves and heating stoves under the general name for the line of Southland Star. The catalogue just issued shows a large variety of modern patterns.

The Southern Pavement Company.

This is the first plant of the kind to be built in the South. The company propose to manufacture compressed asphalt having blocks and tiles. Limestone forms the principal ingredient of the blocks, and as this is found in great abundance near Fort Payne, that city was selected as the location of the works. The process of manufacture is thus described: The limestone, after being broken into pieces about the size of a man's fist, is dropped into a crusher, and reduced to pieces small enough to pass through openings ¼ inch square. During this process of crushing the limestone, about 25 per cent. of the product is reduced to flour. This stone is then carried by an automatic elevator and deposited in a heater, which revolves on large rollers and is driven by a powerful system of gearing. This heater, when loaded, weighs about 12 to 15 tons. The inside arrangement of the heater is in the form of a screw, and as it slowly revolves the stone is carried forward, and being at the same time exposed to the heat of the fire under the heater it is thoroughly dried, and comes out ready to be mixed with the pure asphaltum used in proper proportion for making the blocks. The asphaltum is received in its crude form and in preparing for the manufacture of paving it is placed in large melters holding five or six tons each and subjected for about 36 hours to a gentle heat, keeping the temperature at about 260° F. During all this time of refining, the liquid is kept agitated by a strong current of air, forced through it by an air compressor, which not only keeps the liquid moving, but also assist in the process of refining, after completing which, the asphaltum and stone are taken in suitable quantities and poured together, while yet hot, in a mixing machine of peculiar form. The limestone dust combines with the asphalt and forms a calcareous, bituminous cement with which, during the mixing, all the larger particles are coated, forming a granular mass. This material while at a temperature of 280°, is placed in a mold and with a powerful press subjected to a pressure of about 120 tons, which causes all the particles to adhere one to another, all interstices being filled by the cementing material, and thus a solid, homogeneous and enduring paving block is produced, the weight of which is but little less than that of a stone block of same dimensions. The press delivers the blocks on an endless carrier, which convey them under water for a distance of about 60 feet, at the end of which they come out cold and are piled ready for use or shipment. These blocks are claimed to have special qualities, of value in having, chief among which is the peculiar fitness of the material for cities that look to improving their sanitary condition The blocks are non-absorbing, and when laid with tight, sanded joints, present no possible opportunity for the soaking of water or other noxious liquid. Not the least of their claim for public favor is the fact that they are almost wholly without noise when subjected to travel. C. H. Gifford, the treasurer of this company, was connected with the late B. F. Sturtevant, of Boston, for a number of years.

Additional Facts of Interest.

It will be observed by the foregoing list of manufacturing establishments, now built or under construction in Fort Payne, that the citizens of that place do not propose to depend upon the sales of pig iron to distant consumers. While they are favored by the possession of facilities for the very cheap production of pig iron, they realize the advantages of transforming this crude material into more finished forms, thus employing many more workmen and making their city of greater importance. This is a peculiar and commendable feature of the policy of those who are building up Fort Payne. Nor do they propose to attach their fortunes to the manufacture of iron and iron products alone. Other interests are being cared for. Rich kaolin deposits in the vicinity are being developed. It has been shipped to East Liverpool, Ohio, and worked into chinaware of excellent quality. Being very rich in aluminum, a plant for the extraction of that metal is under contemplation. The lumber interests are important A number of planing mills are in operation, and a factory is being built to manufacture wood fruit baskets and packages and axe and other handles. The company operating it have a capital of $50,000, and will employ 150 hands. R. H. Hunt, of Chattanooga, is president, and True P. Pierce is treasurer. The enterprising character of the people who have settled at Fort Payne is demonstrated in their having established thus early a system of water works, an electric light plant and an ice factory. These enterprises are in the nature of luxuries, to be enjoyed only by large aggregations of people, but the citizens of Fort Payne regarded them as necessities, and made provision for enjoying such conveniences from the start. Banking facilities are excellent, three banks being already in operation and another in process of organization. A cotton factory and a malleable iron foundry are among the possibilities of the near future. The hardware trade of the city is well cared for, two large stores being in successful operation. One of them is conducted by the Fort Payne Hardware Company, composed of E. B. Cook, James D. Rawles and George Uniacke. Mr. Cook was formerly in the hardware business in Portland, Maine, Mr. Rawles in Boston, and Mr. Uniacke in Brunswick, Maine. They not only carry a full line of hardware and house furnishing goods, including stoves, but also deal in mining supplies, railroad supplies, paints, oils, &c., conduct a large business in plumbing and steam fitting and operate a tin shop on general work. The other store is owned by the Rushmore Hardware Company, of which W. P. Rice is president, F. H. Tobey, vice-president; and H. C. Rushmore, secretary and treasurer. The business is under the direct management of H. C Rushmore, who was formerly in the hardware trade at Clyde, Kan. The company also carry a large stock of general hadrdware and house furnishing goods. They handle the well-known Garland stoves of the Michigan Stove Company. Both of these establishments, it will be noted, are under the management of experienced hardwaremen, familiar with the business in all its ramifications and well equipped to serve the interests of either those who sell to them or buy from them.

The Fort Payne Rolling Mill Company.

This organization has a capital stock of $300,000. The works are well advanced in construction, the main building being under roof and a part of the equipment already in place. The managers hope to have the plant in operation before midsummer. They purpose to manufacture open hearth basic steel, and have designed their entire equipment to that end. James H. Lanning is in charge of the mechanical details, for which work he is specially fitted by education and experience. For a long time he was connected with the Henderson steel plant at Birmingham. The dimensions of the main building of these works are 450 feet by 80 feet. It is constructed of heavy frame work with a corrugated iron roof and sides. Auxiliary buildings are provided for the boiler house and machine shop. The boiler house contains 14 flue boilers, each 16 feet by 5 feet, with 52 three and a half inch tubes. The machine shop is on the opposite side of the main building and is now in active operation, running on special work in connection with the equipment of the mill. In the arrangement of the works economy in handling material has been carefully studied. Coal is brought in on an elevated track and delivered to the gas producers near the boilers. Eight Laughlin and six Wellman gas producers will be used. The pig iron and scrap will be unloaded from cars at one end of the mill and will pass forward until the finished product emerges from the other end. Two 15-ton open hearth furnaces are now nearly completed. Room has been left for two more. These furnaces are of the Krupp type, and are being built by George Gogin, of Boston. They will not be lined with lime, but will have magnesia bottoms. The magnesia brick will be extended a little above the bath line and through the ports. The roofs, however, will be composed of silica brick. The magnesia brick used are imported, none being manufactured in this country. In operating these furnaces, lime will first be sprinkled over the floor and added to the charge of metal afterward as may be found necessary to effect dephosphorization. The lowest grades of Southern pig iron will be used, care being taken to secure iron low in silicon. Less trouble is now experienced in this regard than would have been the case but a few months since. Quite a number of Southern furnaces now make low silicon iron. Iron and steel scrap will also be used in the charges. It is expected that the raw material for making basic steel will not cost over $10 per ton at the works, and that the ingots can be turned out at $17 to $18 or less. This result appears possible. If it is accomplished it will lead to another revolution in the iron trade. Its importance extends further than the effect likely to be produced on the iron trade of the South. Many Northern ores are of the same character, and if cheap basic steel can be produced in the South it can also be produced at but a little higher cost in the North. Mr. Lanning

claims that the magnesia lining will not cause a heavy expense in the matter of repairs. He says that the magnesia brick have proved to be very durable, as many as 900 heats having been made on one lining. The two melting furnaces are expected to have a capacity of about 150 tons a day. The ingots and blooms are handled by hydraulic power, the appliances being constructed by the Morgan Engineering Company, of Alliance, Ohio. The blooming train, built by Totten & Co., of Pittsburgh, is a two-high reversing mill with 32-inch rolls and 30 x 48 inch engines, designed to break down steel ingots 16 inches square. The capacity of the blooming mill is rated at 300 tons a day, and will be for some time the heaviest piece of mill machinery south of the Ohio River. Totten & Co. are furnishing other rolling machinery, consisting of a nail plate train, a 16-inch bar mill and a 9-inch guide mill. The steel will be marketed in the form of slabs and billets, or more finished products, according to the demand. All the engines except the blooming mill are being built by Alex. K. Rarig & Co., of Columbus, Ohio. It is the intention of the company to work part of their product into cut nails, using a new nail machine, built by Henry H. Hill, 36 Pearl street, New York, under the Gleason patent. This is a self-feeding machine of rapid action, claimed to make 20 to 25 kegs a day. Five of these machines have been received and set up, and the total number to be put in the factory is 200. The rolling mill company have secured the exclusive right to these machines in the Southern States. The officers of the company are as follows: W. P. Rice, president; A. W. Train, formerly secretary of the Cleveland Hardware Company, vice-president and general manager; E. H. Towne, secretary and treasurer; James H. Lanning, assistant manager.

The Fort Payne Furnace Company.

This company is capitalized at $200,000. The plant is rapidly approaching completion and the furnace will probably be blown in June. The stack is small compared with most Southern furnaces, being only 65 feet by 14 feet, but the superintendent, John H. Mullin, believes that the size he has selected will prove to be better adapted to the ores of the district than the larger sizes. The nominal daily capacity of this stack is 75 tons. The blast will be heated by three Siemens-Cowper fire brick stoves, each 65 feet by 16 feet. The cast house is being built of brick, 110 feet by 45 feet, and has a corrugated iron roof. The stock house is built of frame with corrugated iron roof and sides, 150 feet by 75 feet, with two tracks 15 feet high. An iron hoist tower, with a crane vertical hoist, takes the stock to the tunnel head. The engine house is built of brick, 55 feet by 35 feet. In it two blast engines are housed, each 72 by 48 by 36-inch steam cylinder, built by the Columbus Machine Company, of Columbus, Ohio. The machinery and ironwork throughout were furnished under contract with Alex. K. Rarig & Co., of Columbus, Ohio. The steam is supplied by eight boilers, each 52 inches by 28 feet, with two 18-inch flues. The draft stack is of iron, 170 feet high and 8 feet 6 inches in diameter in the clear. There are two Gordon supply pumps, 15 by 18 inches, and two boiler feed pumps, 9 x 16 inches. An 8-inch artesian well is being sunk near by to get pure water for the boilers. It is down over 700 feet. This furnace is very eligibly located for its supply of raw materials, and the owners believe that pig iron can be made in it for $7.40 per ton. The coal mines are but four miles distant in a direct line, but ten miles by railroad. Brown hematite ore is mined 800 feet from the stock house, and brought down to it by a gravity incline. Red fossiliferous ore is mined in the same hill only 300 feet distant. The coal of the Castle Rock seam, which is a good coking coal, averages about 30 inches in thickness. Openings have been made at several points and entries driven sufficient to get out 200 tons a day at present, which will be increased to 500 tons a day by the time the furnace starts. An analysis of the coke made from this coal is given below:

Moisture	0.15
Volatile gases	0.64
Fixed carbon	91.67
Sulphur	1.11½
Ash	6.42
Total	99.99½

A plant of coke ovens has been built 700 feet from the stock house. The coal is first crushed and washed, then coked, then put in buggies, which are loaded on cars and drawn into the stock house, thus avoiding rehandling. The tracks are so arranged that the coke can be redumped into railroad cars for shipment elsewhere. The plant now consists of 100 beehive ovens, built of special-shaped brick. The coke made is of very fine appearance, dense and hard. The Fort Payne Coal and Iron Company will erect a large plant of coke ovens at an early day, and furnish coke to the blast furnaces of less favored localities. It is estimated that this coke delivered in the stock house of the Fort Payne Furnace will cost from $1.80 to $2 per ton, and that a ton and a quarter will make a ton of pig iron. The brown hematite iron ore is said to run from 50 to 56 per cent. in iron and quite low in phosphorus. A 24-foot face of it has been opened, which is to be extended to over 30 feet. For the present this ore will be used without washing, as it can easily be picked over. The cost of mining and delivering it in the stock house is placed at 50 to 60 cents per ton. Five veins of red fossiliferous ore, running from 30 inches to 14 feet, have been opened. They are all connected with one tramway and shot into cars to go to the stock house. The cost of the red ore delivered is put at 65 cents per ton. As quality will be aimed at in running this furnace, the mixture will consist of three-fourths brown ore and one-fourth red ore. An outside market for brown ore has already opened up with furnaces desiring it to mix with their red ore. Limestone is abundant in the adjacent hills and can be had at the rate of 3 tons for $1. The cost of labor to the ton of pig iron is estimated in this section at about $1.25 per ton. From these figures and statement it will be seen that pig iron can undoubtedly be produced at very low cost at Fort Payne. The natural advantages of the location, too, have only been partly exposed. An excellent coking coal has been discovered in the Sand Mountain, but a few miles distant, which lies in a seam 6 feet thick, but it is in the opposite direction from the company's railroad to the Castle Rock seam. The brown ore on the hill side above the furnace was found after the furnace had been partly erected. A vein of black oxide of manganese has quite recently been opened up in the vicinity of the city. The officers of the Fort Payne Furnace Company are as follows: J. M. Ford, president; C. O. Godfrey, vice-president; S. C. Hathaway, Jr., secretary and treasurer; John H. Mullin, manager and general superintendent.

The Bay State Furnace Company.

The foundations have already been laid for a second blast furnace at Fort Payne, some distance from the first furnace. The location was selected with a special view to securing close proximity to the large deposits of red ore. It will be of the same size as, and almost a duplication of, the Fort Payne Furnace. Contracts for the ironwork have been made with Alex. R. Rarig & Co., who are under penalty to furnish it complete within six months of completion of the masonry. The officers of this company are as follows: C. O. Godfrey, president; H. B. Hill, general manager, secretary and treasurer; John H. Mullin, superintendent.

NEW ENGLAND NOTES.

Edwin L. Tillinghast, proprietor of the Eureka Iron Foundry, of New Bedford, Mass., has gone into insolvency. The first meeting of his creditors will be held June 13.

The new factory building of the Eagle Lock Company, at Terryville, Conn., has been completed, and was recently dedicated by a ball.

The Palmer Wire Mfg. Company held their annual meeting last week and elected the following officers: President, J. S. Holden; vice-president, W. C. Dewey; treasurer, H. P. Holden; clerk, W. W. Leach. Operations have been resumed in the mill.

The furnace for shaping the plates of the gunboats is under way at the Bath Iron Works, at Bath, Maine, and the foundations for the iron working shops are being constructed. In two months it is proposed to have things ready for starting the fires.

The Fall River Machine Company are busy with an order for 42 spinning frames for a mill in Brazil, S. A.

At the yard of the East Boston Dry Dock Company work is going on rapidly. The piles for the new marine railway are driven and the cellar for the new engine house, which will front on Border street, is nearly completed.

A decision favorable to the complainant in the equity case of Fred A. Daniels against Charles H. Morgan, was given by Judge Carpenter last week in the United States Circuit Court, at Boston. The complainant asked for a decree which would authorize the issue of letters patent to him for his alleged invention of a new and improved apparatus for coiling wire as it comes from the rolls of a rolling mill. Judge Carpenter found that the complainant was the sole inventor of the apparatus. The defendant, who was the superintendent of the Washburn & Moen Mfg. Company, also claims to be the inventor of the system. A decree will be made authorizing the issue of a patent to the complainant as prayed for.

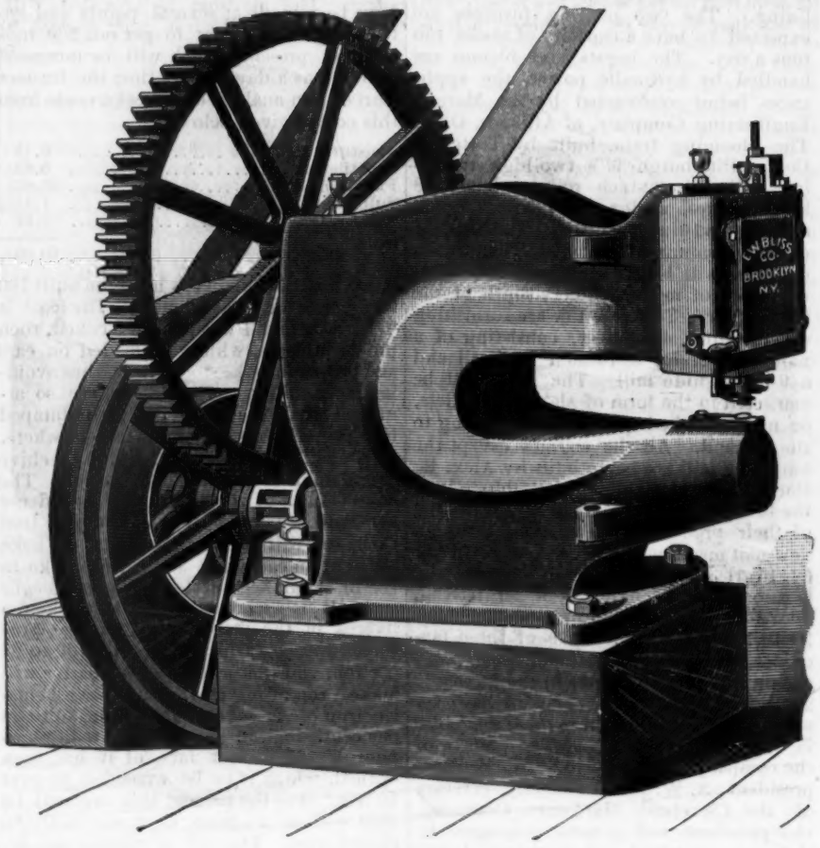
The Taunton Electric Light Company have voted to increase capital stock from $30,000 to $50,000, and additional land has been bought, on which a new two story building will be erected, 50 x 50 feet. The old building, partially burned by the fire, has been rebuilt, and the whole plant is now 100 x 50 feet. The new building will contain compound engines of 200, 90 and 75 horse-power each. The Taunton Locomotive Works will furnish a 200 horse-power boiler. At the annual meeting P. H. Corr was chosen president; Nomus Paige, treasurer; Mortimer Westcoat, corporation clerk; A. G. Williams, P. H. Corr, N. Paige, G. W. Colby, directors. A dividend of 7 per cent. was declared.

The new plant of the Narragansett Machine Company, at Pawtucket, is completed, and work has already begun. The buildings consist of a two story structure, 200 x 50 feet; a one story structure, 200 x 30 feet; a boiler house, 40 feet square, and engine room. The establishment is furnished with Corliss engines and boilers, and fitted throughout with automatic sprinklers. Light machinery is made, a greater portion for gymnasium purposes; more than three-quarters of all the gymnasiums in the country having been fitted out of the old shop.

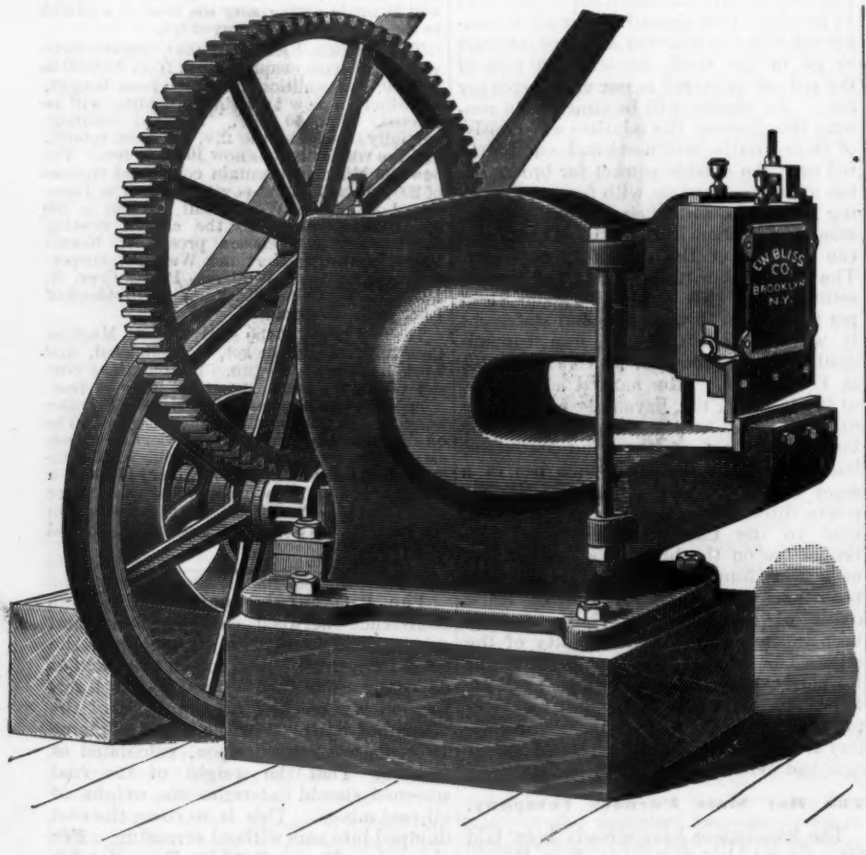
The Pittsburgh Coal Scale.—At a conference between coal operators and miners, held in Pittsburgh last week, the scale for a three-fourth screen was fixed at 65 cents. The men wanted 66, but a settlement was reached on the basis of the Columbus scale. For the run of the mine 79 cents was agreed upon, calculated as follows: That the weight of the coal screened should determine the weight of all coal mined. This is to cover the coal dumped into cars without screening. For clay veins $2 was fixed as the price for cutting from 6 to 12 inches, and all over 12 inches $2 per foot. Where the clay vein is angling 50 cents per yard shall be paid. For all "spar" $1 shall be paid, and 25 cents per yard extra where it is angling.

Punching and Shearing Machines.

The accompanying illustrations represent a few styles of a new line of presses and shears now being put on the market by the E. W. Bliss Company, Brooklyn, N.Y. This company has heretofore declined all orders for punching and shearing machines, such as are used in boiler and bridge work, but of late the demand for such tools has become so frequent that they have finally equipped for their manufacture. The general design of these machines, as will be seen, is of the ordinary type, but care has been taken to produce a line of machines which will be at once strong, substantial and simple in construction, so as to easily do the work indicated and avoid excessive wear. The boiler makers' single punches and shears are each made in several sizes, the depth of throat ranging from 20 inches to 36 inches, the patterns being made throughout in proportion to depth of throat. They are also provided with the bolts for use in heavy cutting where the full depth of throat is not required. Both the shears and punches are also fitted with adjustable gibbs to take up for wear in the cross heads, and also with a valuable independent stop motion, enabling the operator to punch or shear large plates with exactness when required. The shears are calculated to cut plate iron from ½-inch up to 1¼-inches in thickness, and the punches are capable of punching ½-inch hole through ½-inch iron up to a 1¼-inch hole through 1-inch iron, the weight of the several machines ranging from 4000 pounds to 12,000 pounds. The combined boiler makers' punch and shear has a depth of throat, on each side, of 27 inches, the capacity on punch side being a ¾-inch hole through ¾-inch iron, while the opposite side will shear ¾-inch plate iron. The punch and shear sides are each fitted with the independent stop motion referred to, and each side may be worked independently of the other. The frame is made of a single casting, the total weight of the machine being 12,000 pounds. The smaller combined punch and shear is especially adapted for use by bridge builders, iron railing and architectural iron work manufacturers, and such other work where a heavy substantial machine is required. Its capacity is to punch a 1-inch hole in 1-inch iron and shear 6 x 1-inch iron. The independent stop motion is fitted on punch side of machine, and when so ordered can also be applied on the shear side as well. Total weight, 8500 pounds. The makers of these machines state that they intend to add to their stock of patterns as rapidly as circumstances will warrant, and that the larger sizes of machines will be built with engine attached when so required.



BOILER MAKERS' PUNCH.

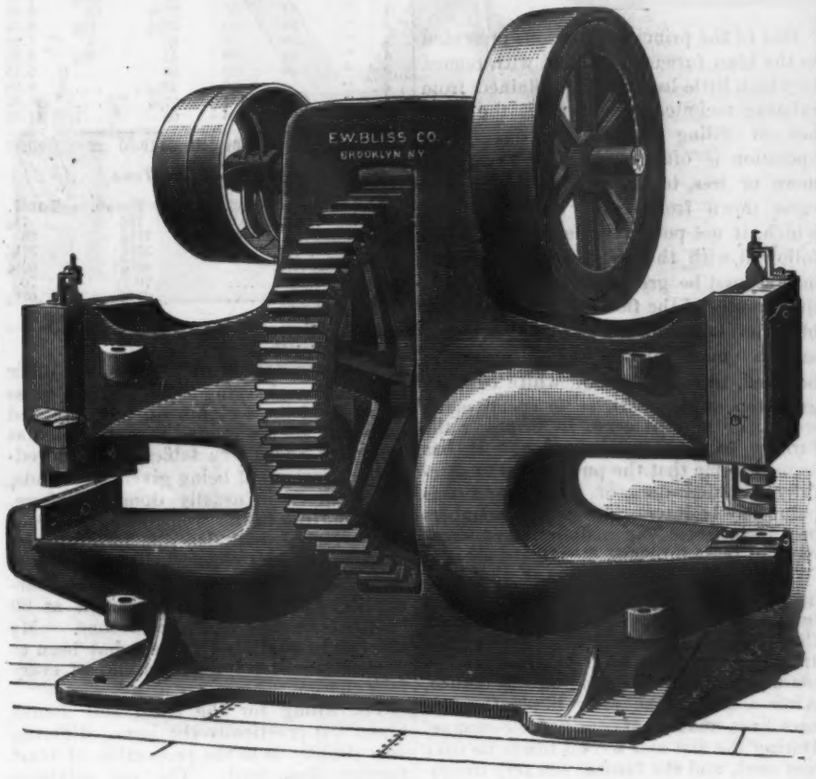


BOILER MAKERS' SHEAR.

The fifteenth annual convention of the Amalgamated Association of Iron and Steel Workers convened in New Turner Hall, in Pittsburgh, on Tuesday, June 3. The convention was called to order by William Weihe, president. The attendance was considerably larger than at any previous meeting of the organization. Two or three days were occupied in disposing of routine business, and the discussion of the new scale for the year commencing July 1 next was taken up on Thursday afternoon. It will probably be ready for presentation to the manufacturers some time during the present week. It is the impression that the new scale will differ materially from the one now in force, and there is a well-founded rumor that it will be based on $5.50 per ton for boiling, on a 2-cent card. This is an advance of 50 cents per ton on the scale now in force. The officials of the organization positively refuse to give out any information as to what changes will be made, so that nothing definite will be known until the scale has been finally adopted. The manufacturers have no organization, and the scale will therefore be presented to the different firms individually, as was done last year.

Com. R. A. Alger is investing heavily in preparations for the manufacture of iron in the State of Washington, at Kirkland, which is not far from Seattle. H. P. Pierce, of that city, while in Chicago last week, said: "At first, most of the stock was held by English capitalists. Now it is held mostly by Americans, a number of

whom are among the prominent men of the land. The company has unlimited capital, and the work of constructing the plants, buildings, railways, &c., will be pushed as rapidly as possible. About 2000 men will be employed on the works in a month, and in less than a year the machinery will be in position and the railroads to the mines ready for operation. While all the Eastern capitalists are not yet known to the outsiders enough of them have been announced to convince the public that the iron company is able to carry out any project which it may undertake. Mr. Kirk, one of the Kirk Brothers, of the great English iron establishment, is interested in the venture. The iron works signifies a great deal for all Washington. It is the first long step in the direction of manufacturing the iron which abounds through all that part of the country."

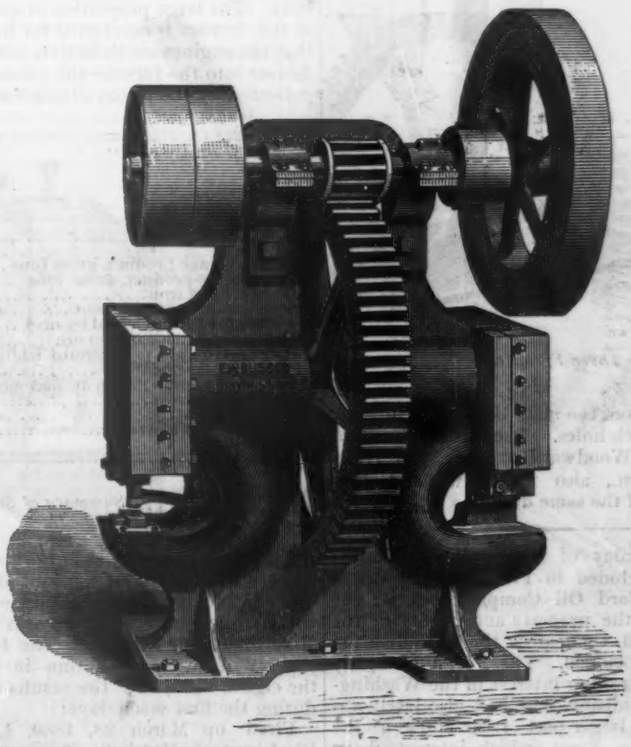


COMBINED BOILER MAKERS' PUNCH AND SHEAR.

A New Electric Coal Cutter.

The Thomson-Houston Motor Company, of Boston, have put in operation, near Osceola, Pa., an electric coal cutting machine, which has attracted attention from mining men throughout the country. The plant consists of a 7 horse-power steam engine belted direct to a 7 horse-power generator. The electric current is conveyed through the mine to the coal cutter by a wire suspended along the roofs of the gangways. The cutter in this case is nearly a mile from the generating plant. A 5 horse-power motor operates it, and is compactly placed on the same bed plate with the machine. The cutter itself consists of an iron frame 24 inches high, 8 feet 6 inches long and 36 inches wide. Nine auger shaped drills, similar to those now used in mining, are placed in the lower part of the frame. Between each drill is a steel cutter bar, which cuts all coal left between the holes drilled by the auger bits. On the under side of each cutter bar are attached several scrapers which hang loosely and pull all the coal back as fast as it is cut or drilled, keeping it out of the way and making the opening clear. All coal taken out of this cut is coarse.

The hight of the cut is 4 inches. The machine makes two cuts in five minutes, as it is easily handled and needs only to be pushed along the breast by lever bars. The switches and controlling devices are so placed that one man easily operates the cutter. The machine is provided with twin wire cable, which is long enough to extend along any ordinary chamber, and does away with the need of permanent wiring except in the headings. A suitable truck is provided for the cutter, upon which it may be carried around the mine with ease. An ingenious device will be provided on future machines by means of which the motor will pull itself and the cutter off and on the track as required The weight of the complete machine is a little over ½ ton. One strong point in favor of this machine is the readiness with which it accommodates itself to varying hardness of strata. The motors are wound for but 220 volts pressure, so that all danger from high potential currents is done away with. The capacity of the machine is 180 tons of coal per day of ten hours in a 4-foot vein. Several improvements on the first machine will be embodied in the regular apparatus which is now being manufactured at the Thomson-Houston Motor Company's factories, in Lynn, Mass.



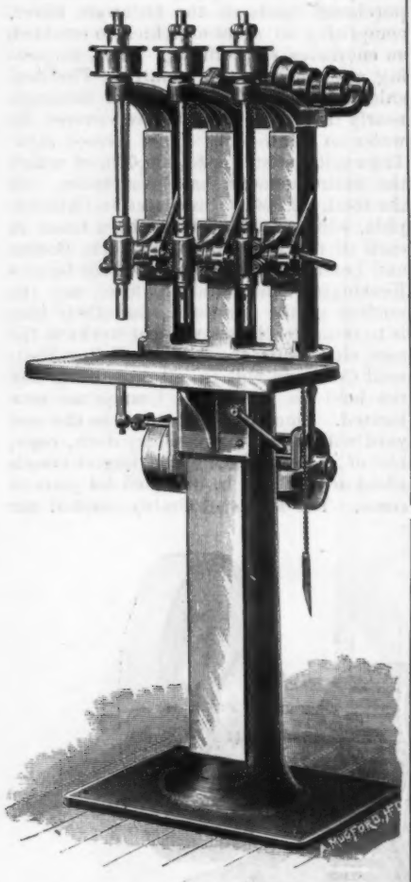
COMBINED BAR IRON PUNCH AND SHEARS.

A Great Shipbuilding Plant.

It is definitely announced that the Cramps, of Philadelphia, and others, have purchased lands on the Delaware River, comprising 50 acres on which to establish an enormous shipbuilding plant, surpassing any other in the country. The consideration was $300,000, cash, although nearly the entire tract is now covered by water at high tide. The *Record* says: The capital stock is $5,000,000, of which the entire amount has been taken. Of the total, $2,000,000 is placed in Philadelphia, while $1,000,000 has been taken in each of the cities of New York, Boston and London. The Cramps, of the famous Kensington shipbuilding firm, are the nucleus of the syndicate, and their idea is to transfer all their present works to the new site, while the Lehigh Valley Railroad Company will in all probability buy the land on which the Cramps are now located. One of the features in the new yard will be an immense dry dock, capable of accommodating the largest vessels afloat or that may be designed for years to come. The site is admirably adapted for shipbuilding, because of its location and the depth of the channel, there being 30 feet of water at that point. Wharton Barker is said to have practical charge of the affairs of the syndicate, and to have recently completed arrangements in Europe which brought the whole scheme to a climax.

Three Spindle Drill.

This machine was designed with special reference to the use of drills or tools of different sizes and lengths; the spindles and table are adjustable up and down, a feature not on other multiple spindle sensitive drills. The spindles are tool steel ⅞ inch diameter, and have a traverse of 13 inches. They have taper holes, Morse drill socket No. 1 and are run by different sized pulleys. They are adjustable by moving the arms, which are gripped to the front of the uprights, and are balanced by weights. The throw of the spindle by the feed lever is 3½ inches. A steel rack fitted into the slides is used. The distance from the center of the spindles to the column is 6 inches. The table is 23½ x 12 inches, and moves the entire length of the column. The drill needs no countershaft, as it takes



Three Spindle Drill.

the belt from the main line. It will work up to ½-inch holes. The manufacturers of this drill, Woodward & Rogers, of Hartford, Conn., also make two and four spindles of the same design.

On Monday of last week negotiations were concluded in Pittsburgh by which the Standard Oil Company became the owner of the property and rights of the Forest Oil Company, the consideration being $1,600,000. The Forest Company had a controlling interest in the Washington Oil Company, and had also lately absorbed the larger part of the stock of the United Gas Trust, which interests have also passed under the control of the Standard Oil Company.

The window glass workers in Pittsburgh are worried over the proposed new tariff and the probability of higher prices for domestic glass. The higher the prices the greater the margin given to foreign manufacturers to ship in their products—so they argue.

FILLING AND BLOWING IN A BLAST FURNACE.*

BY B. F. FACKENTHAL, JR., RIEGELSVILLE, PENNSYLVANIA.

One of the principal questions presented to the blast furnace manager, with regard to which little help can be obtained from existing technical literature, is the manner of filling and blowing-in. This operation is often performed according, more or less, to traditions which have come down from earlier practice, and which, if not positively detrimental when followed with the large modern furnace, may at least be greatly improved, just as the running of the furnace itself, while in blast, has been improved. It is not necessary, as many of the old furnace men believed, to make a lot of white or silver gray iron at the start, or to spend many weeks, or months even, in bringing the furnace to its normal burden. It has seemed to me that the publication of carefully recorded data of practice on this point may be interesting to the members of the institute engaged in the management of blast furnaces.

The enlarged blast furnace at the Durham Iron Works, Riegelsville, Pa., owned by Messrs Cooper & Hewitt, of New York City, was first put in blast February 21, 1876, since which time it has made seven blasts, and is now running on the eighth. After some of the early blasts the furnace lines underwent considerable change. During the first and second blasts no coke was used, and the furnace ran very irregularly, showing a constant tendency to scaffold, which was attributed, in great part, to the small hearth and other defective lines. The large proportion of air required at this furnace is accounted for by the fact that the engines are defective, and do not deliver into the furnace the amount of air indicated by the piston displacement.

The principal object of this paper, however, is to give an account of the filling and blowing in of the furnace during the six successive blasts known to us as Nos. 3, 4, 5, 6, 7 and 8. The following tables will show the filling in detail of the eighth blast, and the results obtained during the first seven days:

Fired up March 28, 1889, 4.30 p.m. Blast put on March 24, 1889, 9.30 p.m. Burnt 29 hours. First cinder March 25, 1880, 1.30 p.m. Sixteen hours after blast. First iron March 26, 1889, 8.30 a.m. Thirty-five hours after blast. Ore mixture: 12½ per cent. Mokta (African), 45 per cent. Durham, 25 per cent. Ringwood, 17½ per cent. Porman (Spanish). Yield of ores, 52 per cent. Fuel: ½ coke, ½ anthracite coal.

Charges.	Fuel, cwt.	Ores, cwt.	Limestone, cwt.	Slag, cwt.	Iron in ores, tons.
Bed	400	..	20	80	....
4 each	80	30	17	20	3.12
4 "	80	35	20	17½	3.64
4 "	80	40	22½	15	4.16
4 "	80	45	25	12½	4.68
4 "	80	50	27½	10	5.20
4 "	80	60	32½	7½	6.24
4 "	80	70	40	5	7.28
4 "	80	80	45	2½	8.32
4 "	80	88	50	....	9.15
4 "	80	96	52½	....	9.98
4 "	80	104	57½	....	10.82
4 "	80	108	60	....	11.23
Total tons..	212	161 4-20	90 19-20	22	83.82

Pig Iron Made, Tons.

	No. 2.	Gray Forge.	Total.
First day	....	7½	7½
Second day.....	7½	17½	25
Third day	....	37½	37½
Fourth day.....	....	62½	62½
Fifth day.....	....	70	70
Sixth day.....	....	67½	67½
Seventh day....	....	70	70
Total.....	7½	332½	340

For convenience in keeping the office records, our charging scales all have gross beams, and the weights of fuel, ore and limestone are designated in our books (as well as in the above tables) as hundred-weight, instead of being given in pounds, as I believe is usually done elsewhere. After putting in the wood and "bed" of fuel, which I will describe later on, we commence using regular charges, and at once establish our unit of fuel, which, during the six blasts, has remained at 80 hundred-weight, or 4 gross tons. My practice in starting a furnace has been to increase the burden at the end of every four charges.

The filling for the third and fourth blasts was practically the same, differing only slightly as to the proportion of blast furnace slag used. The ore mixtures were not identical, but the yield in both cases was the same, viz., 46½ per cent. Both started (after putting in the bed) with a burden of 50 hundred-weight of ore, and were increased 5 hundred-weight at the end of every fourth charge until the furnace was full with a burden of 80 hundred-weight of fuel to 100 hundred-weight of ore, or 1 unit of fuel to 1¼ units of ore. The results obtained from these two fillings were almost the same. No. 3 produced 248 tons and No. 4 produced 262½ tons during the first seven days. In both cases the first and second casts were mottled and white iron, while the third and fourth casts were silver gray iron, after which the product was No. 2 and gray forge. The mottled iron made on the sixth day of the third blast was the result of a stop. As I prefer to blow in on open gray forge iron, I endeavored, as far as possible, in filling for the fifth blast, to correct the mistakes of the third and fourth fillings, and to avoid making mottled and white, as well as silver gray iron. To correct the former tendency, I started with a lighter burden, and by increasing the burden faster at certain stages of blow-

	Number of blast.						
	1	2	3	4	5	6	7
Weekly average product, gross tons	282.51	313.29	413.51	480.87	509.00	637.83	691.25
Daily average product, gross tons.....	40.36	44.75	59.07	68.69	85.56	91.12	98.75
Fuel per ton of iron.....	1.467	1.383	1.288	1.268	1.228	1.211	1.206
Proportion of coke, per cent.....	None	None	11.23	19.07	18.50	23.92	34.43
Percentage of iron yielded by ores	46.82	51.38	50.57	53.79	53 33	52.53	53.65
Percentage of limestone to ore	55.00	53.29	54.88	56.34	59.42	52.52	54.23
Cubic feet of air per minute while running. Piston displacement.....	10.160	9,698	11.385	13.355	15.618	16.440	17.518
Cubic feet of air. Piston displacement for one pound of fuel	95.44	92.04	87.58	89.09	86.35	86.37	86.02
Pressure of blast.....	8.50	8.30	8.09	8.25	9.00	9.03	10.15
Temperature of blast, F.	750°	885°	868°	900°	900°	900°	958°

Summary of Seven Blasts of the Durham Furnace.

* From a paper presented at the Washington Meeting of the American Institute of Mining Engineers.

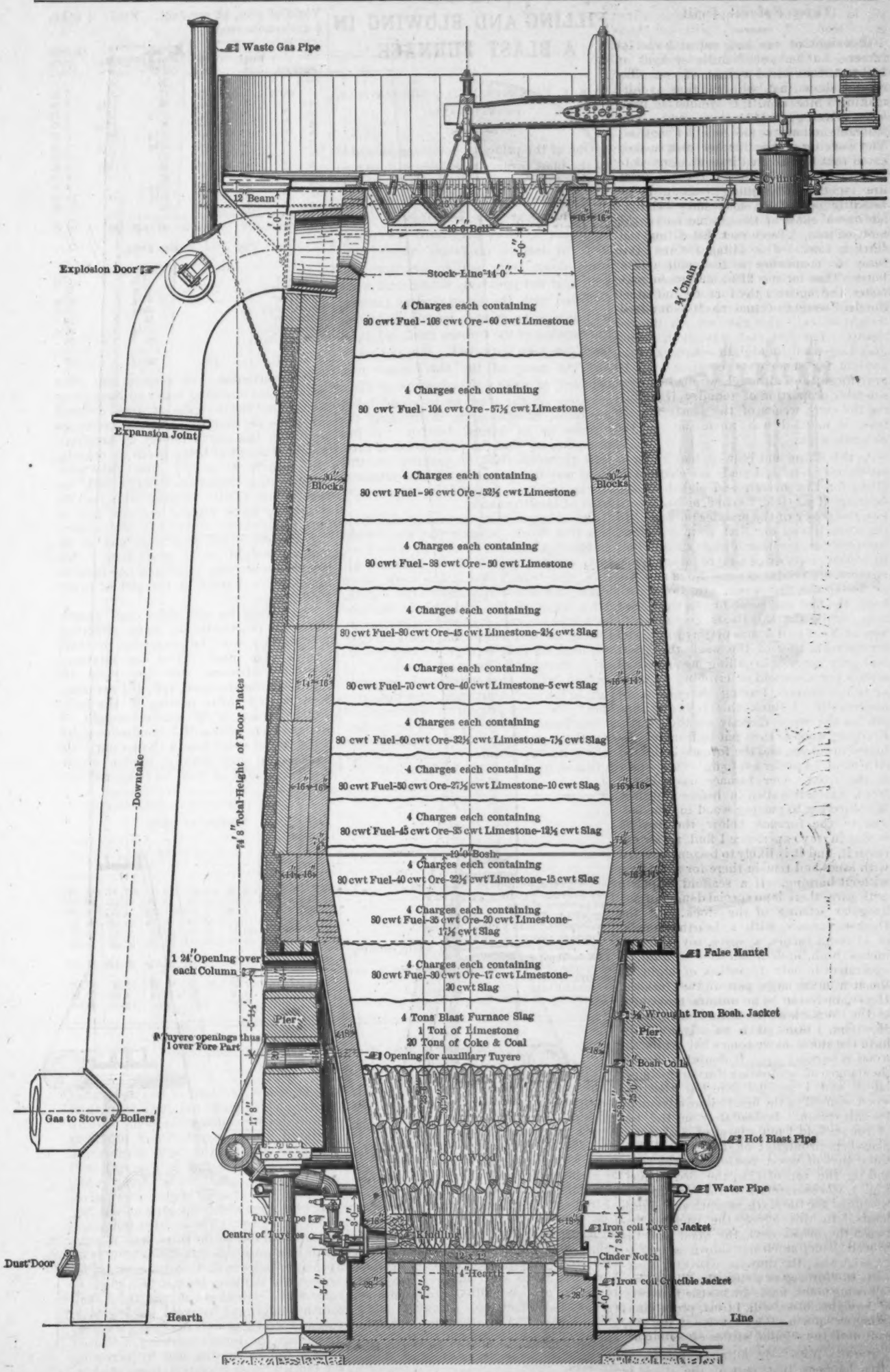

Waste Gas Pipe
12' Beam
16'-0" Bell
Explosion Door
Stock-Line 14'-0"
¾" Chain
4 Charges each containing
80 cwt Fuel-108 cwt Ore-60 cwt Limestone
4 Charges each containing
80 cwt Fuel-104 cwt Ore-57½ cwt Limestone
Expansion Joint
4 Charges each containing
80 cwt Fuel-96 cwt Ore-52½ cwt Limestone
30" Blocks
30" Blocks
4 Charges each containing
80 cwt Fuel-88 cwt Ore-50 cwt Limestone
4 Charges each containing
80 cwt Fuel-80 cwt Ore-45 cwt Limestone-2½ cwt Slag
4 Charges each containing
80 cwt Fuel-70 cwt Ore-40 cwt Limestone-5 cwt Slag
Downtake
17'8" Total Height of Floor Plates
4 Charges each containing
80 cwt Fuel-60 cwt Ore-32½ cwt Limestone-7½ cwt Slag
4 Charges each containing
80 cwt Fuel-50 cwt Ore-27½ cwt Limestone-10 cwt Slag
4 Charges each containing
80 cwt Fuel-45 cwt Ore-25 cwt Limestone-12½ cwt Slag
19'-0" Bosh
4 Charges each containing
80 cwt Fuel-40 cwt Ore-22½ cwt Limestone-15 cwt Slag
4 Charges each containing
80 cwt Fuel-35 cwt Ore-20 cwt Limestone-
17½ cwt Slag
1 24" Opening over each Column
False Mantel
4 Charges each containing
80 cwt Fuel-30 cwt Ore-17 cwt Limestone-
20 cwt Slag
⅜ Wrought Iron Bosh Jacket
Pier
Pier
4 Tons Blast Furnace Slag
1 Ton of Limestone
20 Tons of Coke & Coal
Tuyere openings thus 1 over Fore Part
Opening for auxilliary Tuyere
1 Bosh Coil
Gas to Stove & Boilers
Hot Blast Pipe
Cord Wood
Water Pipe
Tuyere Pipe
Centre of Tuyeres
Kindling
Iron coil Tuyere Jacket
Cinder Notch
Dust Door
12 x 12
14" Hearth
Iron coil Crucible Jacket
Hearth
Line

Fig. 1.—Durham Blast Furnace.—Method of Filling.

ing in, I sought to avoid making silver gray iron. I started with 40 hundred-weight of ore, and ended with the furnace full at 80 hundred-weight of fuel to 104 hundred-weight of ore. The results show that while I thus avoided making white iron, I continued to make some silver gray (17½ tons), and a considerable quantity (55 tons) of mottled. The working of the furnace clearly indicated that the mottled iron was caused by an overburden. Moreover, the ore mixture for the fifth filling contained less hematite ore, which may have been an additional cause of the production of this mottled iron. To correct this filling still further, I decided, in filling for the sixth blast, to commence with a still lighter burden than for the fifth, and to increase faster, ending with the furnace full at 80 hundred-weight of fuel to 108 hundred-weight of ore. This gave me the desired results. The first cast was good, strong gray forge, a little high in silicon, and the product for some days continued to be gray forge; and although we made a considerable proportion of foundry iron during the early weeks of the blast, only 30 tons of mottled was made up to the eleventh week.

As this filling and blow-in had given us satisfactory results, I made no changes in filling for the seventh and eighth blasts, desiring, if possible, to confirm by repetition the policy of the practice pursued. In the seventh blast our first cast, as before, was gray forge, rather high in silicon, but, by reason probably of a more favorable ore mixture, we produced some No. 2 and No. 2x during the first week. In the eighth blast, the first and second casts were gray forge, while the third cast contained 7½ tons of No. 2 and 5 tons of gray forge, and for the remainder of the week the grade was gray forge. In filling a furnace I always put a scaffold or cribbing of wood up to the tuyeres, leaving an open space underneath. I think this is better than placing the wood directly on the hearth. Kindling wood is then put in front of the tuyere openings, and the furnace is lighted all around. I prefer not to light the furnace at the front. Our furnace has a closed front, which is walled in before lighting. My objection to putting wood in the bottom of the furnace below the tuyeres is that in my experience I find no air can reach it, and it is likely to become covered with ashes and remain there for some time without burning. If a scaffold is put in with care, there is no special danger of any irregular settling of the stock. At the Durham furnace, with a hearth-diameter of 11 feet 4 inches, a space, say 4 feet 6 inches high, underneath the scaffold, is equivalent to only 18 inches of hight by the area in the large part of the furnace. Hence, there can be no unusual movement of the stock when the scaffold burns away. Moreover, I think it is an advantage to have the stock move somewhat while the wood is burning up. It doubtless lessens the danger of scaffolding during the blowing-in, and I am not sure but that the wood scaffold in the hearth is an advantage for this reason. Immediately on the top of the scaffold I put a layer of cord wood, placed horizontally; on the top of this, three tiers of wood resting on the ends, and on the top of this, the bed of fuel. Fig. 1, shows a section of the furnace as it was filled for the sixth, seventh and eighth blasts. In this figure, the packing between the bricks next the shell and the in-wall, is not as clearly shown as in Fig. 2; otherwise, the drawing correctly represents the furnace as well as the filling. The following notes, made during the first week of the eighth blast, will, I trust, prove interesting as showing the behavior of the furnace until the regular burden came down:

Furnace Notes.—In filling a furnace it often happens that part of the stock is

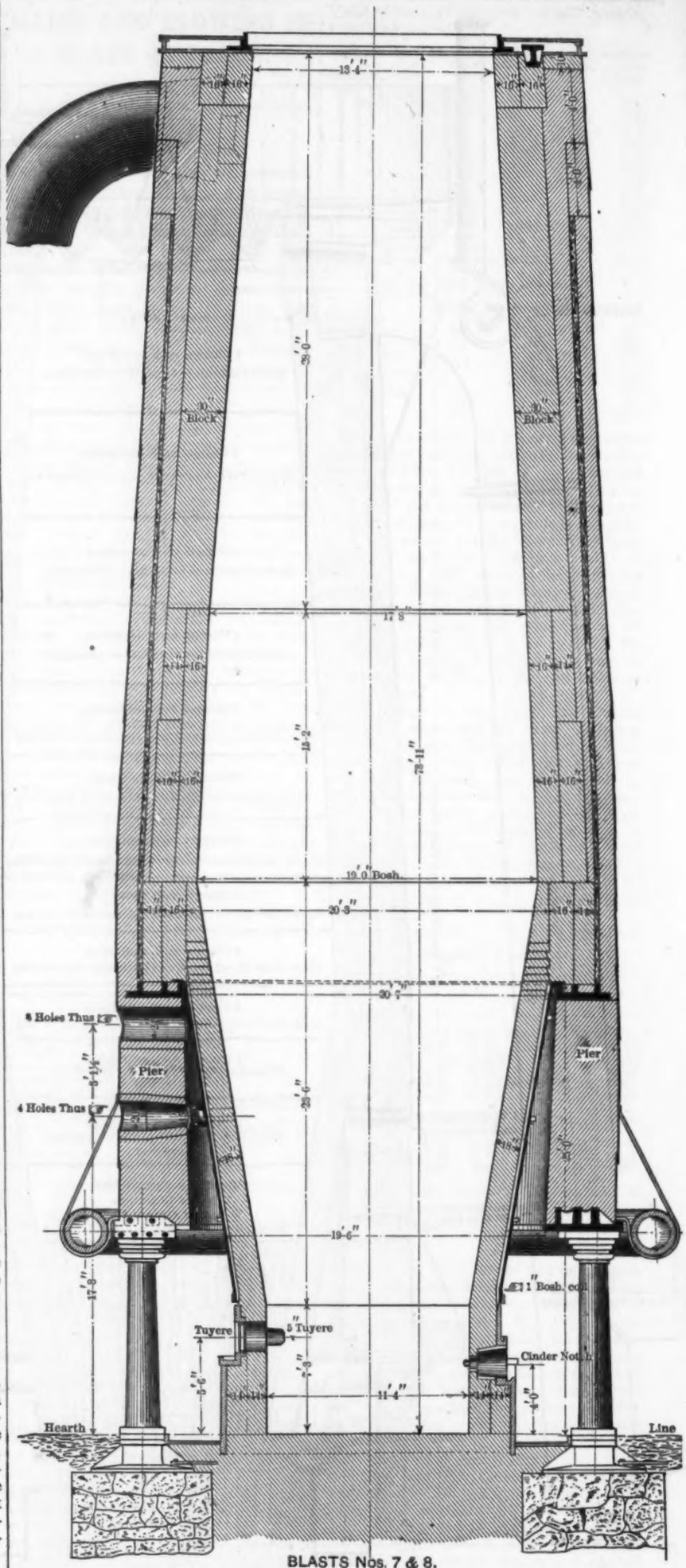


Fig. 2.—Durham Furnace, Riegelsville, Pa.

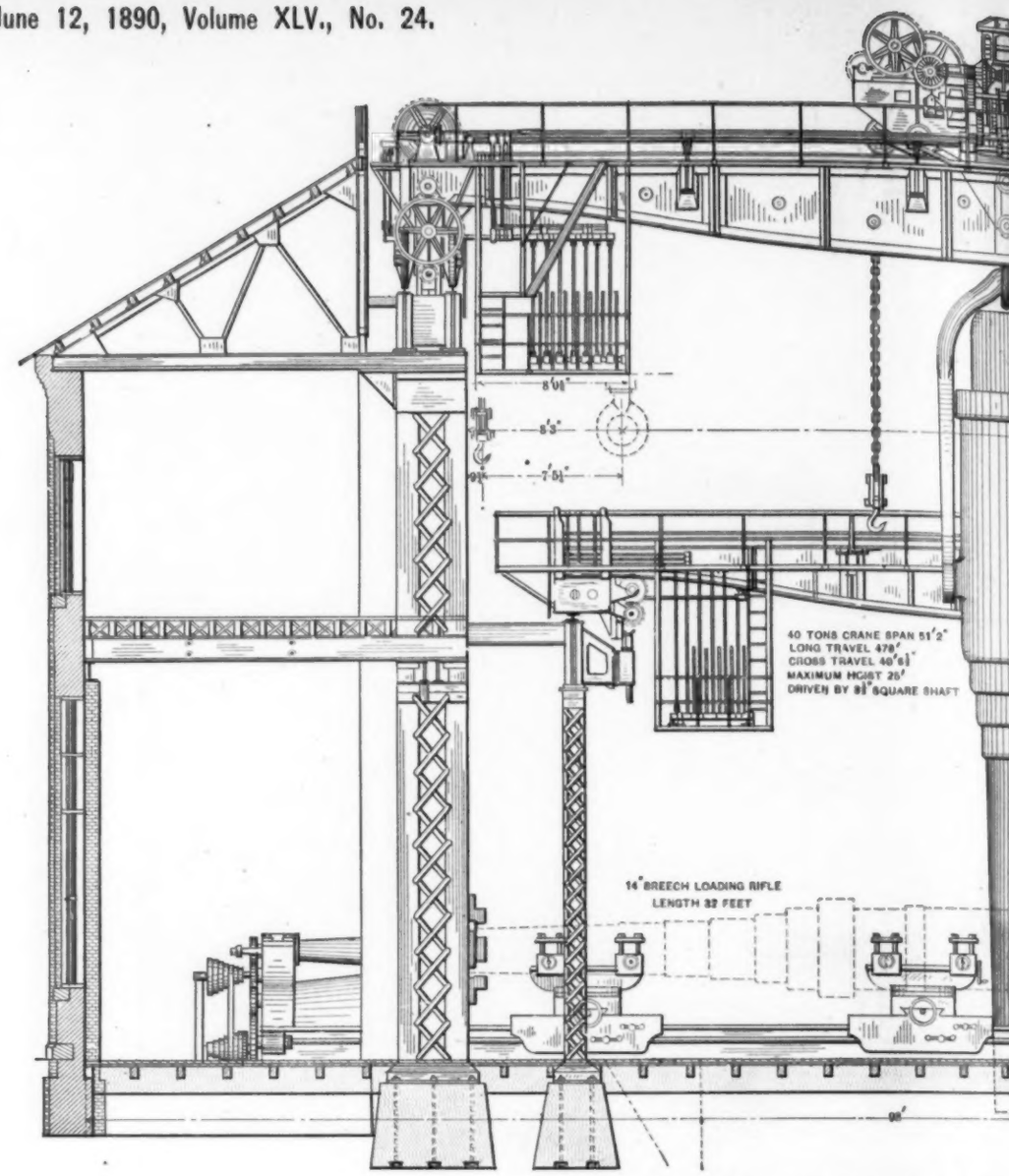


FIG. 1.—GENERAL TRANSVERSE ELEVA

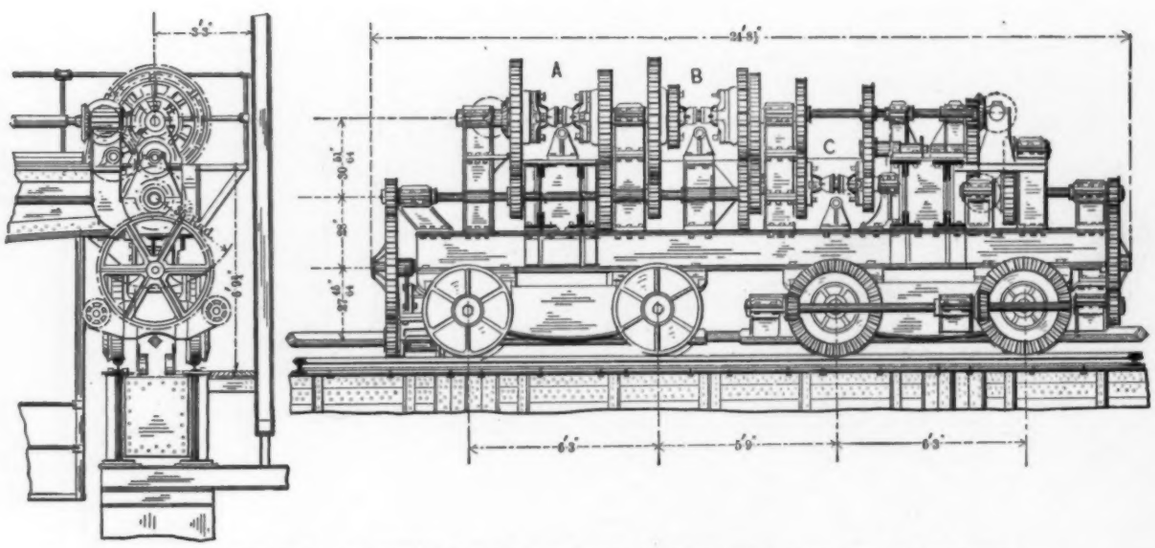
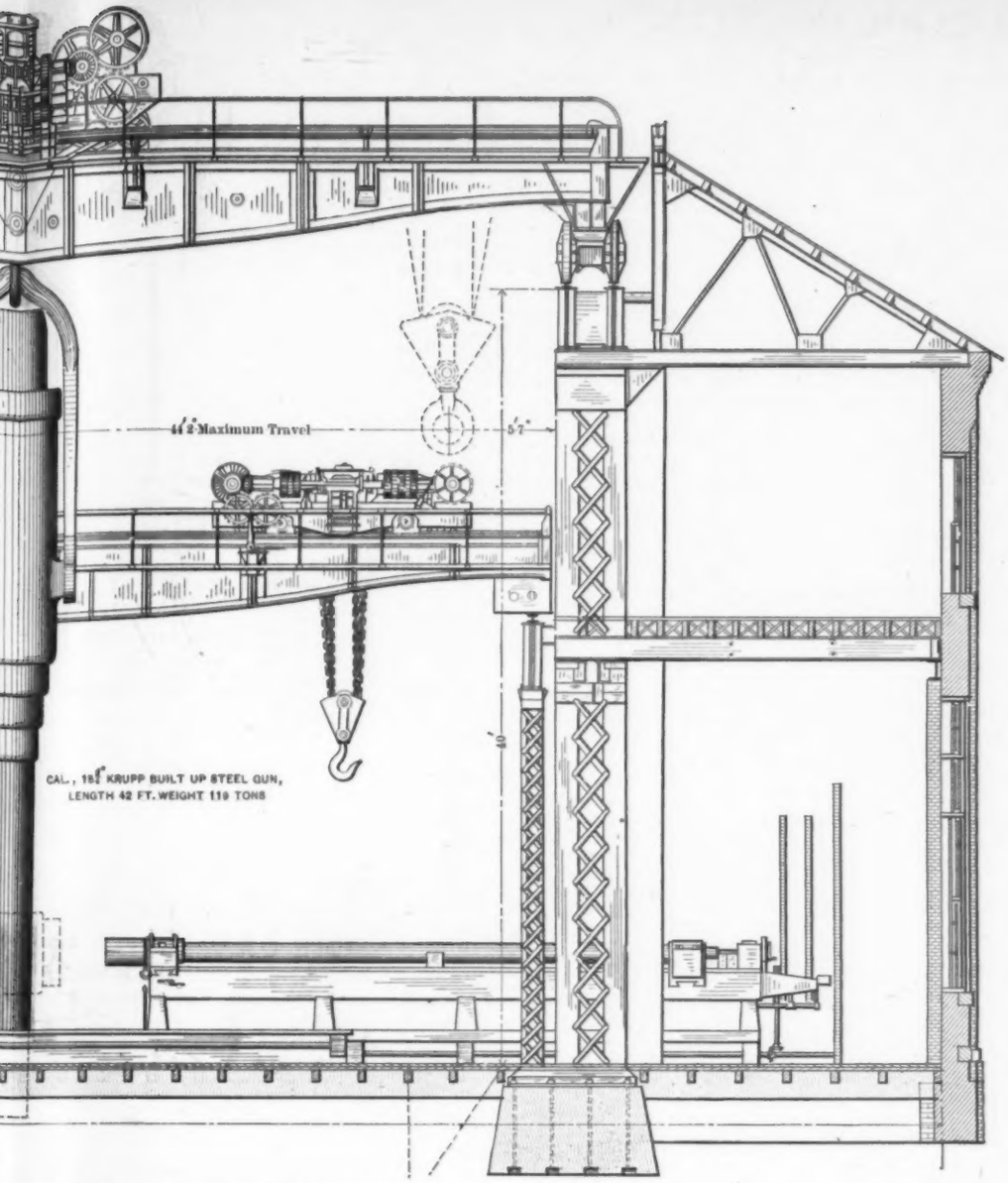


FIG. 2.—GENERAL DRAWING OF END TRUCK SUPPORTING ONE END OF BRIDGE.

LARGEST TRAVELING CRANE IN THE WORLD, BUILT BY THE MORGAN ENG



ATION, SHOWING CRANE IN POSITION.

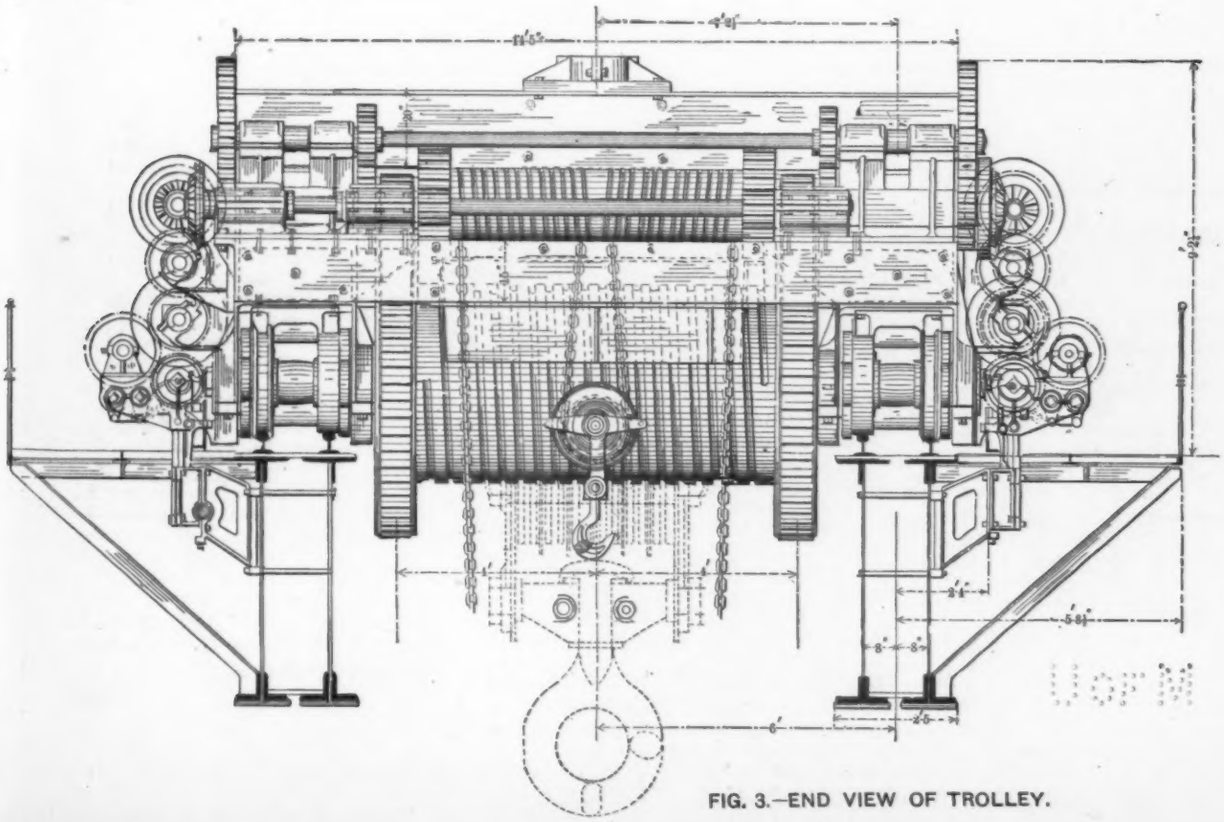


FIG. 3.—END VIEW OF TROLLEY.

NEERING COMPANY FOR THE 12-INCH GUN SHOP, WASHINGTON NAVY YARD.

more or less wet. Even when dry stock is filled, and particularly when it is left standing, if only for a day or two, while the charging apparatus is being adjusted, or for any other reason, more or less moisture is absorbed, and it would require some hours to kindle the furnace and get a natural draft through it. To save time, therefore, and to guard against an irregular burning, I put up the tuyere pipes (through the openings in the waterbreasts or tuyere coolers), and by means of the blast engines blow a gentle pressure of air, which soon clears away the smoke and creates a natural draft. Before lighting the furnace I close the iron notch and cinder notch The furnace is then fired at all the tuyeres.

For our No. 8 blast the furnace was lighted March 23, 1889, 4:30 p.m.

5 p.m.—Put up tuyere pipes and started engine.

6 p.m.—Smoke appeared at tunnel-head.

7 p.m.—Strong draft at tunnel-head; tuyeres bright; stopped blowing.

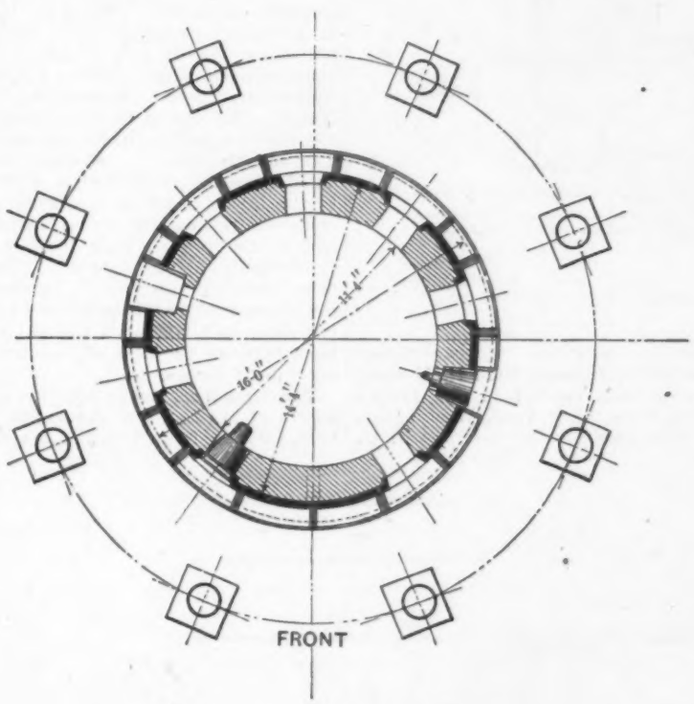


Fig. 3.—Durham Furnace.—Section through Tuyeres.

From this time, until the furnace was ready for blast, the tuyeres were watched with care, kept free from ashes, and regulated so that the draft through them would be uniform all around. Wind blowing from the west necessitated putting a brick or two in the tuyeres on that side. During the burning of the furnace the charging-bells were kept open.

March 24, 7 p.m.—Cinder dripping quite freely at all tuyeres. An inspection of the iron notch and cinder notch showed a considerable amount of melted cinder, and prepartions were made to put on the blast. Cinder notch and tuyeres were put in, and the iron notch was cleaned out and stopped with coal dust.

9.30 p.m.—Blast put on, the furnace having burned 29 hours. Used seven 3-inch nozzles. Started by blowing 6000 cubic feet of air per minute through two iron pipe stoves of the Durham pattern. Pressure very low, but not exactly measured, the gauge not registering pressures less than ½ pound. Valves on cold side of ovens, almost closed, in order to get engine room pressure enough to close and operate the charging bells. Gas was abundant from the start; but tuyeres were not bright and required considerable pricking. Stock had settled 7½ feet in burning up.

11 p.m.—6500 cubic feet of air. Pressure, ½ pound. Temperature, 480° F. Tuyeres brighter. Commenced filling.

12 p.m.—7000 cubic feet of air. Pressure, ½ pound. Temperature, 600° F.

March 25, 3 a.m.—7500 cubic feet of air. Pressure, ¾ pound. Temperature, 680° F.

6 a.m.—8000 cubic feet of air. Pressure, 1½ pounds. Temperature, 760° F. Tuyeres very bright; stock settling regularly. Filled three charges during night, each 80 hundred-weight fuel, 108 hundred-weight ore, 60 hundred-weight limestone. Stock down 7 feet.

9 a.m.—8000 cubic feet of air. Pressure, 1¾ pounds. Temperature, 860° F. Gas continued to get richer. Fires under boilers put out.

12 m.—8000 cubic feet of air. Pressure, 2¼ pounds. Temperature, 900° F. Could easily carry more, but, as heat was not needed, I thought best to keep a reserve. Turned water into bosh coils. Steam blowing off at boilers.

1.30 p.m.—First cinder 16 hours after putting on blast. About 3 tons; color gray; a little stringy; tapped through bronze notch with 1-inch opening. Cinder contains 39.73 per cent. silica.

3 p.m.—8500 cubic feet of air. Pressure, 3¼ pounds. A third hot blast oven put on in order to dispose of surplus gas.

4.30 p.m.—Second cinder, 3 tons. About same as first tap.

6 p.m.—8500 cubic feet of air. Pressure, 3¼ pounds. Temperature, 860° F. Cinder getting hotter.

12. p.m.—9000 cubic feet of air. Pressure, 3¼ pounds. Temperature, 860° F.

March 26, 3 a.m.—9000 cubic feet of air. Pressure, 3¼ pounds. Temperature, 880° F.

6 a.m.—9500 cubic feet of air. Pressure, 4 pounds. Temperature, 880° F. Furnace full. Stock filled during past twenty-four hours, 5 charges, each 80 hundred-weight fuel, 108 hundred-weight ore, 60 hundred-weight limestone; 6 charges, 80 hundred-weight fuel, 112 hundred-weight ore, 62 hundred-weight limestone.

8:30 a.m.—12 cars of cinder out. Silica in twelfth car, 39.98 per cent. Made first cast, 7½ tons gray forge. Stock settling regularly and evenly. No slips at cast. Changed nozzles from 3-inch to 3½-inch.

12 m.—9500 cubic feet of air. Pressure, 5 pounds. Furnace getting grayer; not driving fast enough. Commenced filling some scrap through inside charging bell.

3 p.m.—10,000 cubic feet of air. Pressure, 5½ pounds.

4 p.m.—Furnace slipped 3 feet, evenly all around, while blast was on. Pressure before slip, 5½ pounds; after slip, 4½ pounds. Burden at work, 45 hundred-weight of ore.

6 p.m.—11,000 cubic feet of air. Pressure, 4½ pounds.

9 p.m.—11,000 cubic feet of air. Pressure, 5 pounds.

11 p.m.—Second cast, 12½ tons gray forge. Furnace slipped 3 feet when blast was taken off. On starting again, pressure was 4 pounds. Burden at work, 60 hundred-weight of ore.

March 27, 3 a.m.—11,000 cubic feet of air. Pressure, 4¼ pounds.

6 a.m.—Third cast, 7½ tons No. 2 and 5 tons gray forge. Furnace regular. Pressure 4¼ pounds, both before and after cast. Burden at work, 70 hundred-weight of ore. Stock filled during past 24 hours, 14 charges, each 80 hundred-weight fuel, 112 hundred-weight ore, 62 hundred-weight limestone, 12 barrows (about 5 tons) scrap.

9 a.m.—11,500 cubic feet of air. Pressure, 4½ pounds.

1 p.m.—Fourth cast, gray forge. Cinder getting darker.

3 p.m.—12,000 cubic feet of air. Pressure, 4¾ pounds. Temperature, 980° F.

7 p.m.—Fifth cast, gray forge. Cinder improving.

9 p.m.—Pressure and other conditions the same.

12 p.m.—Pressure, 5 pounds. Cinder gray.

March 28, 6 a.m.—Stock filled during past 24 hours, 18 charges, 80 hundred-weight fuel, 116 hundred-weight ore, 65 hundred-weight limestone. 12,000 cubic feet of air. Pressure, 4¾ pounds.

March 29, 6 a.m.—Stock filled, 19 charges. Same burden. 13,000 cubic feet of air. Pressure, 5¼ pounds.

March 30, 6 a.m.—Stock filled, 21 charges. Same burden. 13,500 cubic feet of air. Pressure, 6 pounds.

March 31, 6 a.m.—Stock filled, 20 charges. Same burden. 13,500 cubic feet of air. Pressure, 6½ pounds.

April 1, 6 a.m.—Stock filled, 22 charges. Same burden. 14,000 cubic feet of air. Pressure, 7½ pounds.

April 2, 6 a.m.—Stock filled, 23 charges. Same burden. 14,500 cubic feet of air. Pressure, 8¼ pounds. Furnace getting grayer. Iron, No. 2.

April 3, 6 a.m.—Stock filled, 23 charges. Burden increased to 120 hundred-weight ore, 68 hundred-weight limestone; 15,000 cubic feet of air. Pressure, 8¼ pounds. Iron, No. 2 and No. 2x.

April 4, 6 a.m.—Stock filled, 22 charges. Same burden. Nozzles enlarged from 3½ to 4 inches. Iron, 77½ tons, mostly No. 2x.

April 5, 6 a.m.—Stock filled, 24 charges. Same burden. 15,500 cubic feet of air. Pressure, 8¼ pounds. Iron, 80 tons No. 2x, No. 2 and gray forge.

April 6, 6 a.m.—Stock filled, 26 charges. Burden increased to 124 hundred-weight ore, 70 hundred-weight limestone; 16,000 cubic feet of air. Iron, 90 tons No. 2 and gray forge.

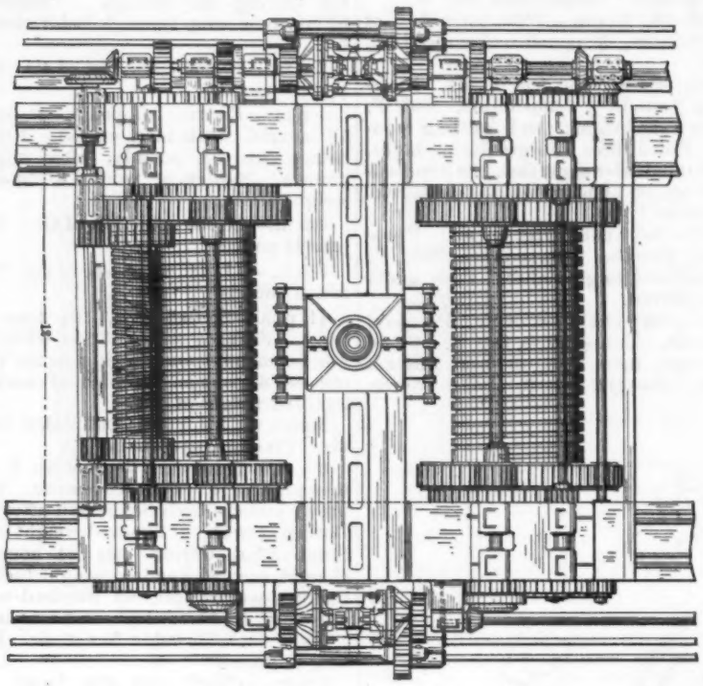
April 7, 6 a.m.—Stock filled, 24 charges. Same burden. 16,500 cubic feet of air. Nozzles enlarged from 4 to 5 inches, being the full area of the tuyere, at which they remained throughout the remainder of the blast.

The only irregularities of any kind observed during the blowing-in were the two slips, each of 3 feet, at 4 p.m. and at 11 p.m. on March 26. The largest volume of air used at any time during the blast was 20,000 cubic feet per minute, but some allowance should be made from this and from all the air measurements which I have given for defective engines, on account of which the loss in delivering the air was excessive. The output during the first regular week of this blast was 555 tons; the second week, 630 tons; the third week, 750 tons, and the fourth week, 770 tons. The largest output for any one week was reached during the thirtieth week of the blast, when 915 tons were made of No. 2x, No. 2 and gray forge.

Largest Crane in the World.

[*With Supplementary Sheet of Engravings.*]

The Morgan Engineering Company, of Alliance, Ohio, have just completed what is at the present writing the largest traveling crane in the world. It was designed by their chief engineer, John R. Morgan, and is now being erected in the 12-inch gun shop, U. S. Navy Yard, Washington, D. C. The drawings we here present are valuable and extremely interesting as showing all the prominent features of this great machine.



Largest Traveling Crane in the World.—Fig. 4.—Plan of Trolley.

The builders of this crane, while studying the design, made a thorough investigation into mechanical literature, and inquired of several prominent engineers who had visited the large manufacturing establishments of Europe, to ascertain if a like or larger capacity crane for overhead traveling had ever been built. The result showed that the Government now has the largest crane in the world of this special type.

There are hoisting devices that lift as much, if not more, than this crane, but they are secured rigidly to *terra-firma*, supported at top or guyed in a substantial manner, and have but few motions, viz., hoisting or slewing (revolving), and the power used being water under high pressure per square inch.

Before describing the crane, which, although nominally of a capacity of 110 gross tons, will lift 150 tons, we will briefly outline the conditions, as specified by the Board of Naval Engineers in their specification of requirements:

SPECIFICATION.

The crane is to be erected and operated in a building with a clear space of 56 feet between the floor and lower chord of the roof trusses, and to travel on two tracks of parallel double rails, resting on two sets of iron plate girders 36 inches deep supported on double iron columns, spaced longitudinally 16 feet between centers and transversely 2 feet 6 inches from center to center. The tops of the supporting girders are designed to be 40 feet above the floor and the crane is estimated to have an effective lift of 40 feet from the floor to the lower chord of the bridge. The crane will rest on two trucks, one at each end of the bridge, each truck to have eight wheels, four on each rail. The span from center to center of the inner rails of the tracks is 59 feet 2 inches, and between the outer rails 64 feet 2 inches, the distance between the rails of each track being 2 feet 6 inches.

The supporting tracks have an extreme length of 212 feet, and the length of the bridge will be limited by the distance between the columns supporting the roof of the building, designed to be 63 feet 2 inches between the inner faces. The crane to consist of a transverse bridge of two girders of wrought iron or mild steel, of such cross section, depth and construc-

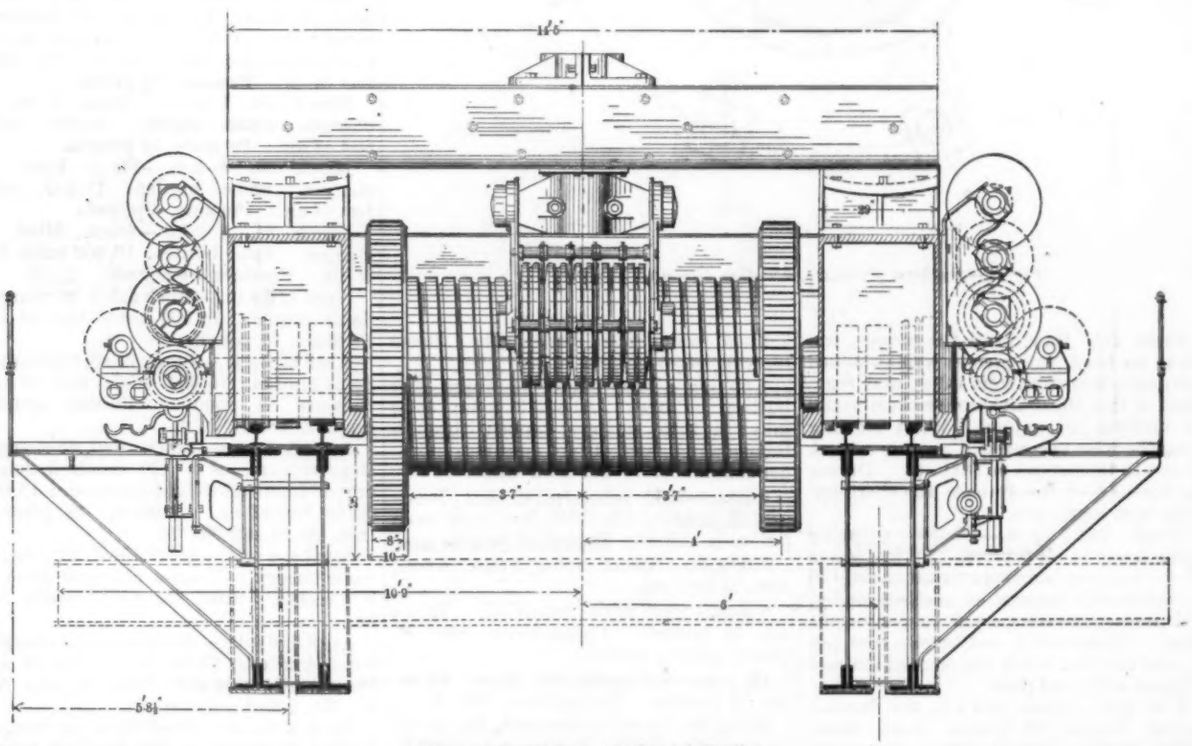


Fig. 5.—Transverse Section of Trolley.

tion as to limit the stress in the upper or compression member of each girder to a maximum of 7500 pounds per square inch, and in the lower or tension member to 8000 pounds per square inch of net section, when carrying the full load of 246,400 pounds at the center of the bridge, increased by the entire weight of the bridge, trolley and connected parts. The two girders forming the bridge to have such lateral stiffness as to be independent of each other, and the construction of the trolley to be such as to enable the block to rise between the girders, thus giving the maximum hight of hoist. Each girder to carry two lines of rails for the trolley wheels, and each rail to be placed symmetrically over the vertical webs of the girder. All hoisting mechanism to be contained within the trolley, which is to be carried on eight wheels, running on four parallel lines of rails, two on each girder. The wheels, like those of the trucks, to be of cast steel turned. The main hoisting gear to consist of two spirally grooved barrels, on which the main hoisting chain will be wound. An auxiliary hoisting mechanism to be embodied in the trolley, having an independent mechanism and chain, and capable of safely carrying a maximum load of 20,000 pounds. The speeds of this auxiliary mechanism to be suitable for the intended load, thus adapting it to convenient use in handling light loads. Automatic stop motion to be provided for preventing over travel of the trolley in either direction. The motions of the bridge on the longitudinal tracks to be effected by a longitudinal cold-rolled square driving shaft, supported by tumbler bearings, attached to the columns or girders. Suitable automatic stop motion to be provided at each end of the longitudinal tracks and on the crane, to prevent over travel of the latter in either direction. The speeds to be as follows:

Hoisting and lowering, ¼, 2, 5 and 20 feet per minute.
Travel of trolley, 10 and 40 feet per minute.
Travel of bridge, 10 and 40 feet per minute.

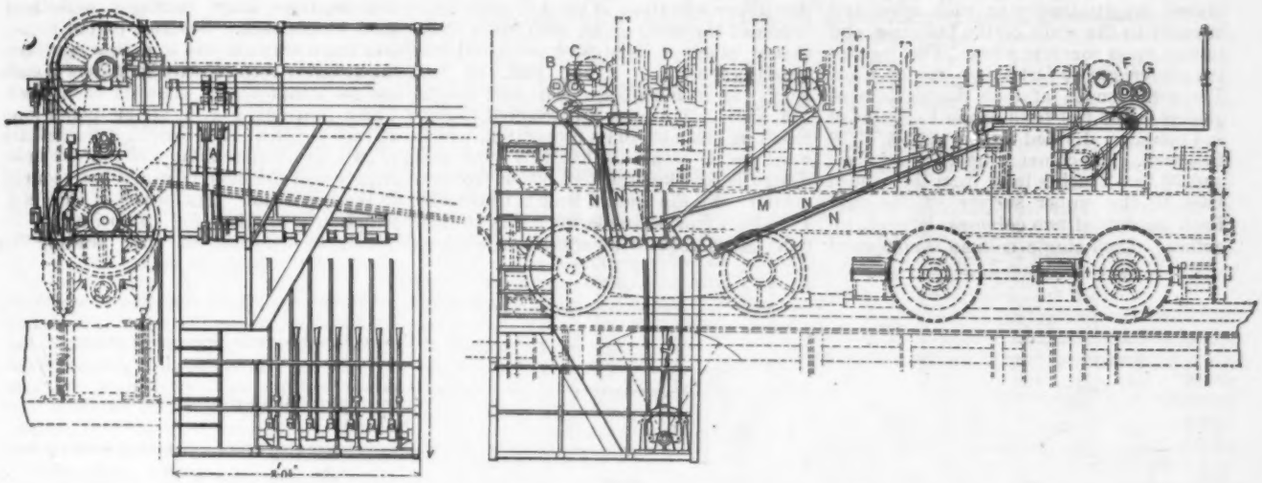


Fig. 6.—Manipulating Gear for Controlling Motions of Crane.

The time allotted for opening of bids for three overhead traveling cranes, of 25, 40 and 110 gross tons capacity, was only two weeks after receiving specifications. This time was extended to seven weeks. Promptly the Morgan Engineering Company, governed by specifications of requirements, designed these several cranes, presented fifteen sheets of complete drawings, with three separate and voluminous specifications for three overhead cranes, as stated. The day set for opening of bids found several bidders present, but the Navy Department was surprised to find so few bidding and these bids on the smallest crane only. The only bidder to present estimate and drawings on large crane was the Morgan Engineering Company, and these evidently were perfectly satisfactory because in due time they were presented with the order for the three overhead cranes, as stated, to build for the United States Navy Yard, Washington, D. C.

These smaller cranes were built, erected and put in successful operation, in their respective places, some time since.

THE GUN SHOP BUILDING.

This consists of 27 bents or frames spaced 8 feet apart, center to center, each bent comprising a main roof truss of about 62 feet 2 inches clear span and 20 feet rise; clerestory posts and framing about 19 feet 6 inches high; two gallery trusses, each 16 feet span and 10 feet rise, all supported by the side walls and the crane columns.

The main trusses are Fink trusses of about 62 feet 2 inches clear span, rafters of 7 inch, deck beams, 51 pounds per yard.

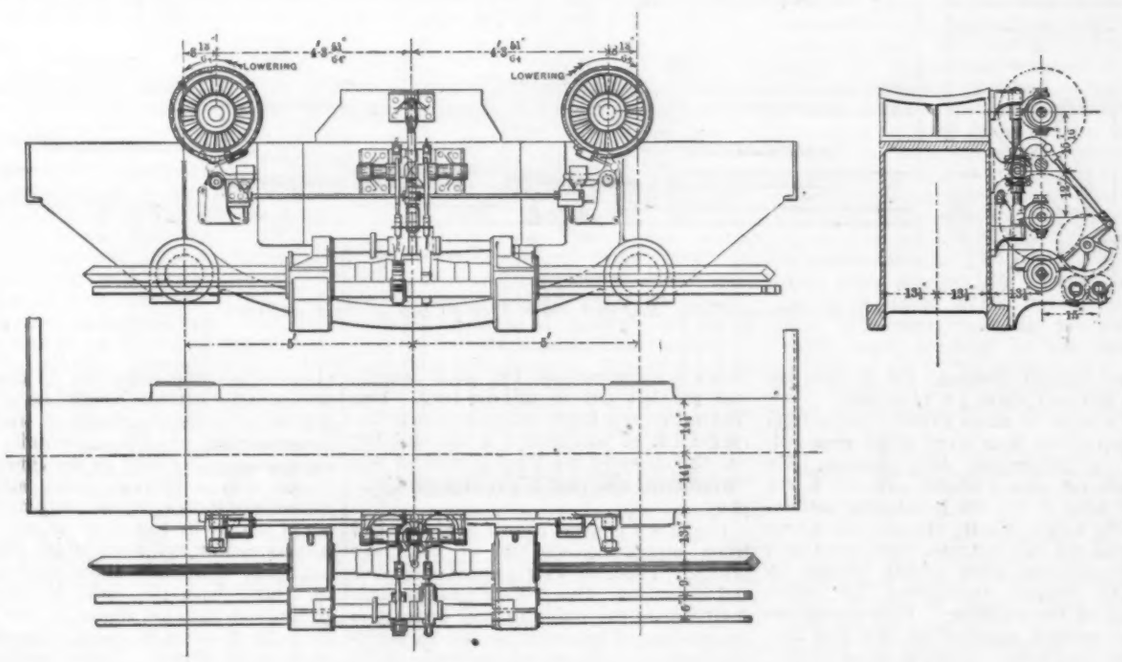


Fig. 7.—Side Elevation of Trolley, Showing Automatic Differential Brakes for Sustaining the Load.

The trusses are riveted to the wall plates and clerestory posts by plate iron brackets.

The elevated track for the crane consists of two parallel double lines of wrought iron plate girders, spaced 59 feet 2 inches apart from center to center of webs of inside girders, the two lines of girders forming each double line being spaced 2 feet 6 inches apart from center to center of webs. These girders are supported upon double columns, with caps and base plates, braced longitudinally to each other and laterally to the walls of the building and resting upon concrete piers. The tops of the girders are 40 feet above top of floor. The total length of each double line of girders is 208 feet from center to center of end columns, divided into 13 panels of 16 feet each. The columns are 28 in number, and 38 feet 3 inches long from the planed base to the upper surface of the cap. Each consists of two columns latticed together. Each single column is composed of two 12-inch channels 120 pounds per yard and two plates ¼ x 14 inches.

At a hight of about 19 feet 9 inches from the top of the floor there is on each column a connection, two 15-inch, 200 pounds per yard, I beams, attached to the inner faces of the single columns and extending longitudinally through the spaces between the two columns composing each double column, from double column to double column throughout the entire length of the building. These beams are firmly secured together by cast iron separators and bolts. Resting upon these I beams, close against each side of each double column, and also midway between the columns, is a 15-inch, 150 pounds per yard, I beam, extending horizontally and at right angles to the line of the columns to the wall, to which it is secured by wall plates, bolts and washers. The pair of beams at each column are rigidly fastened together by cast iron separators and bolts.

DESCRIPTION OF CRANE.

Fig. 1 represents a general elevation in transverse section, looking north of the 12 inch gun shop, with 40 gross tons overhead traveling crane in position upon the lower elevation. The latter is intended, finally, to travel the entire length of the gun shop, but at present only travels about 60 feet into the shop and under the large crane. Its service is to handle 8-inch guns, raise and lower from the large "shrinking pit" located in the shop, and to manipulate loads for machinery in the 8-inch shop, which is an extension of the 12-inch gun shop, only on smaller scale. On the upper elevation is the 110 gross tons overhead traveling crane, with lower chain sheave block at its highest point and suspended thereto a Krupp gun, 42 feet long, 15¾ inch caliber or bore and weight 119 tons. (This gun was selected to represent an idea only of its proportion, and it must not be assumed that this type and design is the class selected by our Government.) On the gound floor is illustrated a 14-inch gun boring lathe. The 16-inch gun lathes require an additional wing or annex to accommodate their great length, and are left out in this drawing. This illustration represents truly the general arrangement of machinery in the building and the splendid engineering work of our Government and that of the Morgan Company.

Fig. 2 is a general drawing of the end truck supporting one end of the crane bridge. These views represent side and end elevations. This truck is on the square shaft side of the building and upon it is the machinery for receiving and transmitting motions to the several transverse shafts parallel with the crane bridge driving trolley mechanism. These several motions controlled by the machinery on the truck are as follows:

Two changes of speed for the main hoist.

Two changes of speed for independent hoist.

Two changes of speed for transverse travel.

Two changes of speed for longitudinal travel. With powerful reversing clutches for reversing travel of crane on track backward and forward. It will be observed that the truck is composed of one longitudinal box beam built of 15-inch steel channels and I beams, with top and bottom tie plates in one continuous length and riveted together and planed smooth top and bottom for true surface in securing the several parts. It will also be observed that the ends of the crane girders are located 12 feet from center to center, and directly beneath the box beam are two separate truck carriages with four steel wheels each. Securely bolted to the box beam are four cast iron bearings having a convex surface, with shoulders at each end for contact with same on each piece. These bearings, Fig. 5, are 39 inches long 22 inches wide. The carriage frames are of cast iron, box section, and concave bearings to suit the male bearings are secured to the box beam. The object of this construction is to allow for compensation in transverse direction of the building in view of possible deflection of the crane bridge under extreme conditions, or lateral deflection in the longitudinal track, and prevents every possible opportunity of permitting an undue load on the inner track wheels; also to prevent undue strain by jamming or locking of the teeth or changing of centers in the spur wheels transmitting motion to the machinery above the box beam. The shafts above the box beam are central with the ends of the crane girders and from the center of the shafts the radii of curves in these compensating bearings is formed. These bearings are truly turned and scraped, with deep spiral grooves, with cored reservoirs in lower bearings for waste to saturate with oil for lubricating. The large intermediate or "idler" spur wheels transmitting motion from the square shaft to the machinery above the box beam and the same on the opposite end, driving the bridge travel, are fulcrumed and secured as part of the lower trucks, thereby allowing an independent motion of the box beam with the machinery above and each lower wheel truck, without binding of parts. The steel

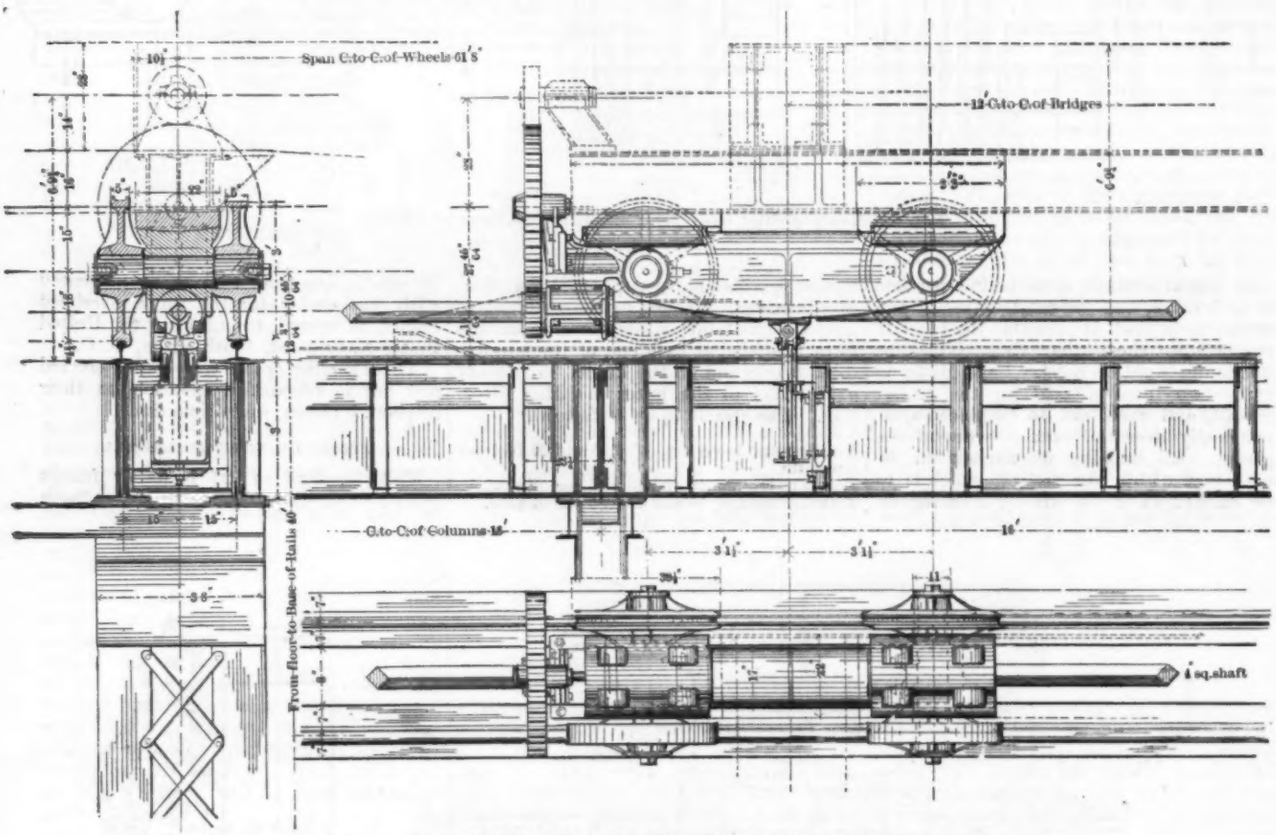


Fig. 8.—Enlarged Side, End and Plane View of One of the End Trucks.

track wheels have large bevel gears securely keyed and bolted to them and driven by steel bevel pinions from both sides of the truck frame. It will also be observed that the main 4-inch square driving shaft is located between the parallel girders on one side of the building track, over which the trucks travel and receive motion.

CRANE BRIDGE.

This is composed of two box section, wrought iron, curved girders. Total length, 63 feet 5 inches; depth at each end, 28 inches; depth in center, 60 inches; width of top and lower flange, 29 inches; web plates, 16 inches center to center. The top and bottom covers are composed of two wrought iron plates, 29 inches wide, $\frac{9}{16}$ inch thick; total, 1⅛ inches. The web plates are $\frac{9}{16}$ inch thick, secured by internal and external angles 6 x 6 x 1 inch thick. The cover plates and angles are in one piece of continuous length. The web plates are in four pieces, with their ends and top planed to insure accurate butt joints, and are united by 15 x ⅜-inch splice plates. The bottom end of the web plates is truly chipped even with the angles to receive the cover plates, which are secured by ¾-inch diameter rivets. All other parts are secured by ⅞-inch diameter rivets. Cast iron distance pieces are placed between the webs at intervals to suit the shape, and are secured by 1-inch through bolts, with cast iron washers on the outside of the webs. The quality of iron required in these crane girders was of the best tough, fibrous, ductile and uniform in quality. The required limit of elasticity was not less than 26,000 pounds per square inch. (The attention of bidders was called to the fact that the elastic limit was one of the most important points in the quality of material.) The test specimen, when taken from angle or other shaped iron of less than 4½ square inch sectional area, required to have an ultimate resistance of not less than 50,000 pounds per square inch, with an elongation of at least 15 per cent. in length of 8 inches. A similar specimen, when taken from plate iron not over 24 inches wide, required an ultimate strength of not less than 48,000 pounds per square inch, with an elongation of at least 15 per cent. in 8 inches. Reduction of area in every case required to be not less than 20 per cent. Each girder, without rails, brackets or machinery, weighed about 24 tons.

Fig. 3 is a drawing representing an end view of the trolley with transverse section of the bridge at maximum depth in center—lower chain sheave block (in dotted lines) at its highest point between crane bridge; the auxiliary hoist mechanism and relation of miscellaneous parts.

Fig. 4 is a general plan view of the trolley, Fig. 5 being a transverse section of the same.

Fig. 6 is a drawing showing the manipulating gear for controlling the several motions of the crane. This drawing is so complete that it speaks for itself in describing the several parts for easy manipulation.

Fig. 7 is a side elevation of the trolley stripped of its machinery, to show the automatic differential brakes for sustaining the load.

Fig. 8 is an enlarged view of one of the end trucks. Fig. 9 is an enlarged view of the equalizing trucks for the trolley frames, and Fig. 10 shows general views of the chain sheave blocks.

Having described the several views represented by the drawings it is in order to specify more particularly the several parts of the trolley and machinery on the crane bridge. The 3-inch square shafts parallel with the crane bridge are supported by four Morgan automatic drop bearings on each side, which are thoroughly positive in their action in raising and lowering to allow the trolley to pass and repass on the bridge, and are noiseless in their action.

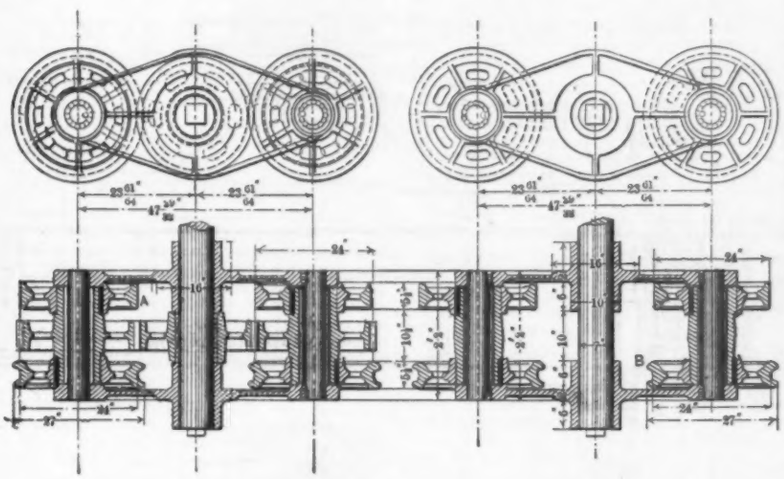


Fig. 9.—Enlarged View of Equalizing Trucks for Trolley Frames.

The respective speeds of these square shafts are 75 and 150 revolutions per minute. One of these shafts drives the main hoist only. One drives the trolley travel and auxiliary hoist only. In addition to these parallel shafts there is a 4-inch diameter shaft for driving two sets of duplicate gearing; one set on each end truck for longitudinal travel of the crane squarely on track. This shaft is held in adjustable bearings, secured rigidly to one side of the bridge. A splendid feature on this crane is the parallel square shafts with bridge for manipulating the several motions in the trolley, from the suspended cage at the end and on one side of the bridge. These several square shafts are threaded through bronze sleeved spur levers, held securely by brackets to the trolley frames on each side, and it matters not whether the trolley is traveling or stationed at any point on the bridge—its motions are under full control of the operator. This valuable feature was patented by T. R. Morgan, Sr., December 18, 1883. It is in use on all cranes built by this company, having several changes of speeds for hoisting. It is also used by one other maker to effect the same purpose for overhead cranes, which clearly demonstrates that it is a very valuable device.

The main trolley frames, Figs. 3, 4 and 5, are of cast iron, box section, and weigh about 7 tons each. The main axles are hammered steel shafts, 15 feet 6 inches long, 7 inches diameter and revolving loose thereon are the two grooved chain barrels 7 feet 6 inches long, 4 feet diameter. Each will wind about 260 feet 1¼-inch short link crane chain. These barrels are driven at each end by half-shroud spur wheels, 6 feet diameter 10 inches face, 3 inches pitch. Steel pinions 13⅝ inches diameter, 10 inches face, 3 inches pitch. All shafts are driven at both ends. All gears less than 2½ inches pitch and under 40 inches diameter have cut teeth. Powerful friction clutches for reversing and changing speeds are designed specially for this crane. These celebrated clutches are the "Frisbie Patents," improved and made by the Morgan Engineering Company. They are used on all cranes made by this company. The trolley is carried upon sixteen 24-inch diameter steel track wheels, divided into 4 separate trucks, each having 4 wheels, composed of 2 steel equalizing beams, fulcrumed on each main axle or chain barrel shafts. These wheels have hardened steel roller or pin bearings. The driving steel spur wheels have 6 inches face, 2 inches pitch, cut teeth.

The transverse bridge beam on the trolley frame is composed of four 20 inches, heavy section, steel I beams for sustaining main chain sheave blocks and load. This bridge at each end rests upon bracket bearings on trolley frame having a convex and concave surface, similar to end trucks supporting crane bridge, and the object is to allow deflection of bridge when sustaining maximum load and to prevent binding of trolley frames against machinery.

The chain sheave blocks, Fig. 10, have five sheaves in the top block and six in the bottom block. Each sheave is 30 inches diameter, of cast iron, steel bushings hardened in oil, and each sheave revolves loose upon hardened steel pin or roller bearings. Side plates of steel with forged wrought iron links. The top coupling link pin for trolley beam and sling link in bottom block have forged steel heads and transverse beams, supporting same in their sheave blocks, are divided in halves, securely bolted and keyed and finished together. These heads are supplied with hardened steel conical rollers, with roller paths to suit. The object of this can readily be appreciated when it is often desired to swing the load completely around without twisting the chains. The chain is rove through the sheave blocks so as to allow the ends to be coupled diagonally to each drum, thereby causing a symmetrical strain on the trolley and crane girders when hoisting and retaining an absolutely vertical lift throughout its entire stroke. The total length of chain rove through the sheave blocks, coupled to drum, is 600 feet of 1¼-inch, short link crane chain, in one piece or length, made specially for this crane by Bradlee & Co., Philadelphia, Pa. The total weight of chain, sheave blocks and sling link, independent of trolley beam, is about 16 tons.

A very important feature on the trolley, especially the mechanism for reversing the hoist, is the two sets of automatic differential brakes, Fig. 7, for sustaining the load. The differential parts are not new, as they are used extensively both in this country and abroad. They possess excellent points of merits when kept in order and not allowed to "stick." When hoisting, the brakes disengage automatically; when stopped, the brakes hold automatically; when lowering by power the brakes are disengaged; when lowering at various speeds, at the will of the operator, the brakes are disengaged. Should any connection between the brakes and operator break, they automatically engage and sustain the load. This feature is also embodied in the auxiliary hoisting mechanism in the trolley. The chain barrel for this independent hoist motion is 5 feet 10 inches long, 18 inches diameter, grooved right and left for ¼-inch short link crane chain. The

chain is coupled with both ends direct to each end of the drum and has clear lift of about 60 feet. The main chain barrels hoist 41 feet clear lift. The crane complete is carried upon end trucks, having sixteen 36-inch diameter steel track wheels. The speeds for the main hoists are as follows:

1 foot per minute, 150 tons.
2 feet per minute, 75 tons.
4 feet per minute, 37½ tons.
8 feet per minute, 18¾ tons.

Independent or auxiliary hoist speeds are as follows:

15 feet per minute, 10 tons.
30 feet per minute, 5 tons.

Speed of trolley travel on the crane bridge, 25 and 50 feet per minute.

Speed of bridge travel on the elevated track, 30 and 60 feet per minute.

The crane motions entire are controlled by seven upright levers, as shown in Figs. 1 and 6, which stand vertical when not in action; when forward or backward each controls two motions. The entire crane in every part is estimated to lift and carry 150 net tons at the slowest speed. It is driven by a 4-inch square shaft, with 48-inch diameter friction pulley, 12½ inches face, and driven by a 12-inch double belt. The total weight of the crane complete is about 200 tons. It required 16 cars to ship to destination. The crane was tested in every motion in the Morgan Engineering Company's shop, except lifting a load on the main gearing. It was driven for test running by two 20 horse-power electrical motors. Electrical instruments used indicated about 30 horse-power to drive every motion together on fastest speed—that is to say, no load suspended nor any travel of bridge on track.

The Minnesota Iron Company last year put their accumulated earnings into a fast line of steel ships for ore transportation. This year the Porter party, who own a controlling interest, propose to build half a dozen more steamers, the vessels to be bought and paid for in cash at the new South Chicago ship yards, these ship yards themselves being in part owned by stockholders of the Minnesota Iron Company. The subject is warmly discussed.

PROVIDENCE NOTES.

One hundred barrels of the new explosive, ennesite, have been sent to the Torpedo Station, at Newport, and its strength and explosive power will be tested upon Ladd's disks.

An improved steam windlass has recently been brought out by the American Ship Windlass Company, of this city, which is acknowledged by experts throughout the country, both in the Navy Department and the merchant marine, to possess merit. It is adjustable in every direction; it has a counterbalance to make it run steadily and smoothly; the worm gear is made so that it can be removed in case of wear without taking the windlass apart; it has an automatic oiler to keep the worm constantly lubricated to prevent cutting and wear; it has a patent reversing motion, so that it can be reversed instantly without any change. The locking gear is of the strongest form, so that it cannot jar out of gear when the windlass is running. On many of the tugboats there is not room enough for a steam windlass, on account of the space taken up by the warping bitts. In this windlass the warping bits are attached to the windlass deck plate, thus making a very strong and reliable warping bit, without taking up any additional room. The deck plate for this windlass is made very thick and heavy, and the bits have heavy flanges, and the castings are braced on the inside, so as to make them as safe to tow by as the wooden bits that go down through the deck to the deck below.

Gardner C. Sims, of this city, and Lyman B. Goff, of Pawtucket, have been appointed as the World's Fair Commissioners from this State, by Governor Ladd, with Jeffrey Hazard, of this city, and Lorillard B. Spencer, of Newport, as alternates.

There is a well organized movement on hand toward building another large machine shop at Dexter, Maine, to be occupied by A. B. Pitkin, of this city. The business will be principally the building of engine lathes, and will employ 50 men.

The stockholders of the Standard Mfg. Company held their annual meeting last week and elected the following board of directors: George W. Prentice, F. A. Smith, Jr., Francis Colwell, Charles E. Bailey, E. C. Lewis, H. H. Peck and E.D. Steele. At a subsequent meeting of the directors George W. Prentice was elected president and F. A. Smith, Jr., secretary and treasurer.

Jamestown, R. I., is to have new water works and an electric light plant.

The Providence Steam and Gas Pipe Company, of this city, have issued the following circular: "The fact that there has been a large water damage at the Globe Woolen Mills, at Utica, N. Y., by reason of the bursting of an automatic sprinkler, has been published by the Associated Press in all of the leading papers throughout the country. There are Grinnell sprinklers in a large portion of this property but it was not a Grinnell head which burst open and caused the damage, but one of another make, with which the property was in part protected."

At the annual meeting last week of the stockholders of the Heaton Peninsular Button Fastener Company officers were elected as follows: President, George W. Prentice; treasurer, George E. Parker; secretary, Franklin A. Smith, Jr.; directors, George W. Prentice, George E. Parker, F. A. Smith, Jr., H. H. Peck and E. D. Steele.

In many of the cotton mills of the country ring frame spinning frames are taking the place of mules. These machines are said to be substituted because of the excellence of the work turned out, the greater production and the small cost of running. Many of these machines are being exported to foreign countries. Looms manufactured in America are considered by foreign manufacturers as superior to all others, because of the speed and good workmanship of the machines. The American engines also come in for a share of attention. Several new machines of the latest designs are in the course of construction at the Corliss works in this city, for South American mills. The value of cotton and woolen machinery exported from Boston during the last year amounted to nearly $325,000. LEONIDAS.

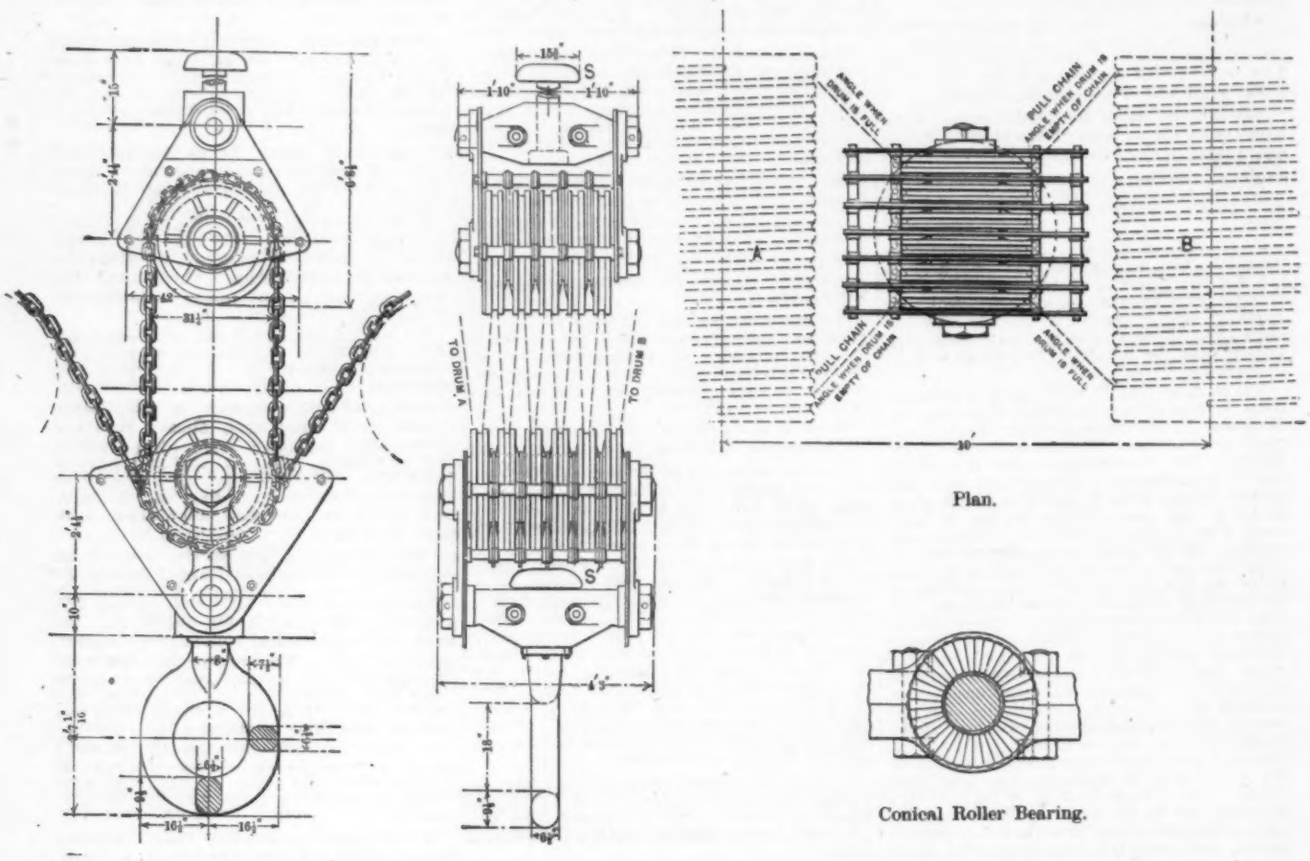


Fig. 10.—General Views of Chain Sheave Blocks.

SOUTHERN MISCELLANY.

Birmingham, Ala., parties intend establishing an agricultural implement works at Pell City, Ala.

Capitalists from Atlanta are forming a company to buy and develop iron and landstone properties around Gainesville, Ga.

The Bessemer Cornice Works, with a capital stock of $5000, have been organized at Bessemer, Ala., by W. J. Long, T. J. Cornwall, H. S. Long and others.

The Macon Stamped and Pieced Tinware Company have been incorporated at Macon, Ga., with a capital stock of $100,000. M. Nussbaum, R. H. Plant, L. E. Culver and others, are the incorporators. This company intend also to manufacture stoves.

Work will begin shortly on the new boiler works to be established at Sheffield, Ala.

A plant to manufacture hot air furnaces is to be established at Chattanooga, by Virgil Stockan, of Carrollton, Ohio.

Valuable iron ore deposits were discovered last week on the farm of M. U. Edwards, in Stewart County, Ga. The ore was found four feet beneath the surface and the vein is of great width and of remarkable richness.

The Illinois Central Railroad Company have given out their contract for the erection of machine shops, boiler works, and engine house at Memphis, Tenn.

Parties are organizing a company to build and operate machine shops at Murfreesboro, Tenn.

J. H. Gill, of Raleigh, N. C., has been in Anniston, Ala., during the past week arranging for the removal of his foundry and machine shops to the last named city. The new buildings are in course of erection and the capacity of the new plant is to be considerably greater than the old one. The works will be in operation by August.

The Gaffney City (S. C.) Land and Improvement Company have purchased from the old Magnetic Iron Company about 7000 acres of mineral lands near Spartansburg, S. C., for $60,000. For the past six months it is stated that iron capitalists from Pittsburgh have been quietly buying mineral rights to property adjacent to these lands. Before the war the Magnetic Iron Company operated furnaces and rolling mills on this property, the ore was of excellent quality and lay alongside of the finest limestone, but years of operation consumed all the charcoal producing timber available, and coke was not within easy reach. The construction of the Charleston, Cincinnati and Chicago Railroad through South Carolina's mineral region has produced a market for these lands and iron development will now ensue. An agent of Mr. Carnegie, it is said, has been for several months engaged in looking out the desirable localities for ore mining, and he is reported to have found some splendid steel making ores, that stand in quality close to the Lake Superior and Cranberry ores. I am told that furnaces are to be built at Blacksburg, as soon as the three C's railroad, as it is popularly called, will reach Big Stone Gap, Va., where access to coke will be obtained. This road will be finished some time this summer. By-the-by, this railroad is going to be an important factor in Southern development. It traverses a virgin country, where wide untouched forests and mineral deposits lie, contiguous to fine water power and magnificent farming lands. Six millions of English money are back of the enterprise and there is no plausible doubt of the road finally winding up at Chicago, establishing short air-line communication between that city and the South Atlantic seaboard.

At New Birmingham, Texas, E. S. Maunsell, A. Brittin and others have organized a company with $500,000 capital stock to build a 50-ton iron furnace within 11 months, on land donated for that purpose by E. C. Dickinson.

The Markham Iron Company, of Chattanooga, Tenn., have ordered 1000 tons of iron ore to be shipped from newly opened iron mines in Cherokee County, N. C.

The capacity of the Avondale, Ala., Iron Works is to be increased by the addition of new machinery.

What is regarded by expert mining engineers as an important deposit of manganese has been opened at Jacksonville, Ala. Of the two large deposits found one assayed 60 per cent. and the other 42 per cent. of metallic manganese. There is a solid face of this mineral 15 feet thick. It is stated that there is a strong likelihood of a company being formed to establish a ferromanganese plant to utilize this mineral.

A Pennsylvania syndicate have paid $37,000 for Doe Mountain, in East Tennessee, not far from the North Carolina line. This mountain s said to contain a large deposit of iron ore, which has never known the miner's pick. There is no railroad within 28 miles, but as over $200,000 are said to have been invested in mineral lands in that locality by capitalists from the North, it is reasonable to infer that it will not be long before important developments will take place.

An extension is being added to the boiler works of Walsh & Weidner at Chattanooga, Tenn., and new machinery will be added, and possibly additional buildings erected.

Gibson & Love, at Chattanooga, have finished the extension to their stove foundry, and are placing new machinery into position.

The Gadsden Bar and Steel Mill Company, with a paid up capital stock of $150,000, have been incorporated at Gadsden, Ala. Work on the new plant will begin at once, and 300 men will be employed when the plant is finished.

The Cahill Foundry Company, of Chattanooga, recently advanced the wages of their molders 10 per cent.

Twenty additional puddling furnaces are to be added to the plant of the Bessemer, Ala., Rolling Mill Company. A double force of hands has been employed for some time.

The plant of the Roane Iron Company, at Chattanooga, as previously reported, is now being remodeled, and over 100 men are at work converting the old plant into a basic steel plant. They anticipate having the new establishment in operation within three months.

The Clifton Iron Company's new furnace, at Ironton, Ala., is approaching completion.

A plant that will cost $100,000, and that will manufacture structural iron, store fronts, &c., will be established at Florence, Ala.

A deposit of iron ore has been found near Tampa, Fla.

At Columbus, Ga., the Golden Foundry and Machine Company have given out contracts for new buildings, the dimensions of which are as follows: Machine shop, 40 x 200 feet, two stories high; foundry, 80 x 150 feet, and storeroom, 60 x 100 feet.

Work is to begin very shortly upon a 100-ton furnace to be built at Carters, Tenn.

The Laredo Iron and Brass Foundry Company, of Laredo, Texas, are finishing their main building, which is 50 x 150 feet, two stories high and of brick. The plant will soon be in active operation.

The new plant of the Fort Worth, Texas, Stove Foundry has just been finished, being equipped with new machinery in every department, including lathes, drills, grinders, saws, pattern table and No. 3 cupola. The foundry room is 60 x 125 feet; the mounting and pattern, 34 x 80; two story finishing rooms, 24 x 35; engine room, 24 x 36; cupola, 24 x 15, two story, all brick and well lighted. The company have an authorized capital of $50,000, and the men who have organized the company are said to represent $500,000.

A three story brick annex is being built to the Harvest Stove Company's works, at South Pittsburg, Tenn., and it is stated that the plant will be in operation before the middle of July.

The business of the E. C. Wehrfritz Iron Foundry, at Little Rock, Ark., has grown so large as to necessitate the purchase by the proprietor of adjoining grounds and buildings that will enable a considerable increase of capacity.

A new Gray's patent revolving head screw machine has been added to the plant of the Standard Machine Works, of Sheffield, Ala.

The Atlanta Wire and Iron Works, of Atlanta, Ga., are working on extra time in order to catch up with contracts in hands. They may have to increase their capacity if business continues as good as it has been for the past few months.

The W. T. Adams Machine Company, of Corinth, Miss., have recently erected in their shops a large set of plate rolls 12½ feet long. This concern are doing a flourishing business just now, and have booked orders for large sized engines to be shipped to San Antonio, Texas; Sequin, Texas; Aberdeen, Miss.; Tupelo, Miss.; Covington, Tenn., and other points.

Deposits of iron ore have been discovered near Arredonda, Fla.

The Cumberland Iron Company have been incorporated at Nashville, Tenn., by M. T. Scott and L. M. Graham, of Bloomington, Ill., and J. C Steger, T. M. Steger, and J. C. Symmes. The old Cumberland Iron Works, one of the oldest iron plants in that region, and which has been idle of late, is to be again started up by this company.

At Huntsville, Ala., a company with a capital stock of $25,000 has been organized to erect and operate a foundry and manufacture plows.

The Howland Coal and Iron Works, of Ashland, Ky., have sold 700 acres of mineral lands to Patton, Everett & Savage, who intend opening mines.

The establishment of a pipe foundry is contemplated at Riverton, Ala.

A company is reported organizing at Aberdeen, Miss., to build and operate an iron furnace at that point.

The Blacksburg Machine and Iron Works, with $12,000 capital stock, have been organized at Blacksburg, S. C., by J. F. Jones, J. J. Whisonant and others.

Iron mines, near Murphy, N. C., belonging to Maultby & Warwick, are to be reopened shortly.

At Nottingham, Ala., the Ashley Lainer Iron Ore Company announce their intention of adding machinery that will enable them to extend the development of their brown hematite mines at that place.

It is stated at Ashland, Ky., that the Lawrence Iron and Steel Company, of Ironton, Ohio, are thinking of removing their plant to Ashland.

Talladega, Ala., has secured the location of the machine shops of the Talladega and Coosa Valley Railroad Company. The equipments for the plant have been purchased, and the work of erection will proceed without much delay.

B. and L. B. Kohn, Julius Garhman and others, of Baltimore, have secured a charter for the Maryland Mining and Milling Company.

At Walnut Cove, N. C., a company is being organized to establish iron and steel works. Dr. W. A. Lash is interested in the enterprise and can give particulars. This is the first step toward iron development in a mineral region of remarkable richness.

The Marion Iron and Wood Working Company, with $20,000 capital stock, have been incorporated at Marion, S. C., by leading local capitalists.

At White Sulphur Springs, W. Va., George Grant, R. W. Montague, H. A. Holt and others, have incorporated the Beaver Lick Iron Company, with a capital stock of $1,000,000. Their charter gives them the right to run furnaces, operate rolling mills, open coal mines, construct coke ovens, with other privileges.

Fred. Sloss, of Birmingham, Ala., is an enthusiastic believer in the steel future of the South. He says: "I feel very confident in the assertion that the Henderson process will settle the steel question for the South. We have, with a great deal of prudence, handled the matter up to date, and every step taken has demonstrated the position that we took two years ago, that we could in a commercial way produce steel. Of course the whole thing was new and many little difficulties have met us, but we are overcoming them one by one, and I am fully confident that within the next 30 days we will finally settle the fact that steel can be produced in a large way by this process."

It is reported at Dayton, Tenn., that the Sciota Machine Works, of Circleville, Ohio, will be removed to Dayton, and the capital stock increased to $75,000.

At the recent annual meeting of the stockholders of the Woodstock Iron Company, of Anniston, Ala., it was decided to issue $1,000,000 6 per cent., 20-year bonds. Mortgage in payment of same will be executed on the company's property.

The South Boston Iron Works are to be removed to Middlesborough, Ky. The capital stock of the company will be increased to $500,000. The erection of new building are under contract to begin early in June. This old and well-known iron plant has a number of Government contracts for gun carriages, ordnance and heavy machiney, beside a well-established general business, much of which will follow it to its new home. One of the principal incentives declared to have induced this contemplated removal is the belief that the company could save $3 a ton on coke and $5 a ton on charcoal iron by making the move.

It is reported at Memphis, Tenn., that the W. M. Farrow Fire Arms Works, of Holyoke, Mass., are to be removed to the first named place.

Parties from Abingdon, Va., have received Va., have received options on 1600 acres of mineral lands in Johnson County, Tenn. On the property optioned is an iron plant known as Ward's Iron Forge.

E. S. Wansell, representing New Orleans capital, has bought 400 acres of iron ore property near New Birmingham, Texas.

At Harper's Ferry, W. Va., a mining, manufacturing and improvement company, with $500,000 authorized capital, have been given a charter with rights to mine ore and manufacture.

THE WEEK.

A Boston paper says the possibilities of a building boom have been lost for this year. The strike has worked havoc with building in that city and with the other large cities in the State.

Smith and Windmill Islands, in the Delaware River, have passed into the possession of the Federal Government. Their removal will give Philadelphia deep water on a valuable section of the city front.

Twenty years ago a farm in England could hardly be bought at any price, and never under $300 an acre. Now many farms are for sale at $120 an acre. But no one wants a farm in England. No one can farm profitably there on $200 land and compete with $20 land in America, with freights 20 cents per 100 pounds from New York City.

In the United States Senate the Fortification bill was passed with amendments increasing the amount for rifled cannon from $251,000 to $400,000, appropriating $285,000 for big gun machinery for Watervliet Arsenal, and providing for various tests.

The chief engineer of the Aqueduct Commission is of the opinion that the delayed work below South Yonkers will be finished on or before the middle of July, when the water can be turned on.

An interesting exhibition occurred last week at the graduating exercises of the cadets at Annapolis, where a special class has been organized for instruction in steam engineering. The graduates found a partly dismantled engine of a long-forgotten make, and vigorously set about putting the machinery in order.

The American flour trade with Brazil is suffering from heavy import duties, and Brazilian millers are endeavoring to emphasize this discrimination. When it is considered that $70,000,000 worth of coffee was imported into this country free last year, and that 700,000 barrels of flour paid $500,000 import duty, the feature of international reciprocity seems strangely lacking.

Mexican finances are now experiencing much embarrassment from the over-stimulation of railroad enterprises. Although the revenues of the country have expanded 22 per cent. during the last four years the increase has not kept pace with the ratio of disbursements. On the 1st of July no less than 23 per cent. of the custom house receipts will go in payment of railway subsidies. The Government proposes to solve the difficulty by funding the subsidies, and for that purpose the Minister of Finance has introduced a bill authorizing a loan to readjust the railroad debt. The proposal is that the loan be secured by setting apart 15 per cent. of the customs receipts, thus saving 8 per cent. upon the present arrangement. So far as can be gathered, the proposition meets with no great objection, it being a choice of evils.

The Farmers' Alliances are zealously pushing their bill for the establishment of warehouses for farm products, to be operated by a Government Sub-Treasury Department, and have recently approached several leading Senators not in sympathy with the proposition. The farmers allege that they are suffering year after year from the controlling influences of speculators, who persistently depress the price of farm products by option trading, and seek relief by warehousing their grain and obtaining advances from the Government. Economists who have given some attention to the subject aver that the scheme would only add to the power of the speculators. It is argued, with some force, that the natural effect of an abnormally increased visible supply would be to depress values. The grain deposited in warehouse being presumably for immediate necessities, are not likely to be repaid by the farmer, and he would, in fact, part with his produce when deposited just as really as though he had sold it outright, with this difference, that instead of obtaining cash value he would receive a percentage only of that, with his certificate left to represent the balance. This certificate alone would be left for sale, and instead of having to buy the grain and pay for it, speculators would take these certificates, and with the inability of redemption staring him in the face it can easily be conceived that the farmer would let them go at a nominal price.

The future ownership of the Chesapeake and Ohio Canal will soon be determined by the receivers in charge. The property was supposed to have been damaged irreparably by the floods one year ago, but the tunnels, viaducts and other masonry on the line may be utilized in permanent railway constructions. The new enterprise known as the Washington and Cumberland Railroad Company, if it succeeds in its plans, will get in the canal a property that has cost more than $25,000,000. One of the tunnels cost alone as much as it will pay for the whole work of 184 miles. There is a great development now going on in the bituminous coal mines of Western Maryland and West Virginia, and from them will be traffic enough for the support of the road. The timber freights are also extensive.

Rich treasures in the shape of iron and coal are found on the Indiana branch of the Pennsylvania Railroad, and will be made accessible by the building of a short line to Homer City. The whole line of the road is underlaid, with three veins of what is known as Freeport coal. The top vein 7 feet in thickness. Each of these veins crops out on the hillsides, and can be mined by drifting. All are above the water line. Coke plants will soon be erected all along the line. A big fire brick works will be built near Homer, and iron mills for Indiana County are but a few years off.

The National Butchers' Association is making a desperate effort to rid itself of the Chicago dressed beef incubus. The move has for its object the consolidation of the various butchers' organizations and all agricultural interests, including the Farmers' Alliance. At the recent convention of the association at Cincinnati a committee was appointed to open the campaign. The consolidation proposes to drive out of the business all butchers who handle dressed beef. This is to be done, if necessary, by a merciless wielding of the big rate cutting butcher knife. It will also be insisted upon that each city shall have a public abattoir.

By reducing the grades on the Lehigh and Hudson River Railroad to a maximum of 37 feet per mile the locomotives will be able to haul 40 per cent. more coal. This road connects the New Jersey Central and Lehigh Coal and Navigation system with the Poughkeepsie Bridge and the New England system at Campbell Hall, N. Y.

A boycott of British beer by Irish saloon keepers in Chicago reduces the expected profits of the new British syndicate and gives their competitors an advantage.

Henry M. Stanley says there is space enough in one section of the Upper Congo basin to locate double the number of the negroes of the United States without disturbing a single tribe of the aborigines now inhabiting it. He refers to the immense Upper Congo forest country, 350,000 square miles in extent, which is three times larger than the Argentine Republic, and one and a half times larger than the entire German Empire, embracing 224,000,000 acres of umbrageous forest land, wherein every unit of the 7,000,000 negroes might become the owner of nearly a quarter square mile of land. Five acres of this, planted with bananas and plantains, would furnish every soul with sufficient subsistence—food and wine. The remaining 27 acres of his estate would furnish him with timber, rubber, gums, dyestuffs for sale. There are 150 days of rain throughout the year. Eight navigable rivers course through it. Hills and ridges diversify the scenery and give magnificent prospects. Anything and everything might be grown in it, from the oranges, guavas, sugar cane and cotton of sub-tropical lands, to the wheat of California and rice of South Carolina. If the emigration was prudently conceived and carried out, the glowing accounts sent home by the first settlers would soon dissipate all fear and reluctance on the part of the others.

The American steamship line to Brazil has to contend with odds more formidable than ever, now that a combination has been formed of almost all the steamship lines in Brazil, to be known as the Brazilial Lloyds. The capital is about $20,000,000, and the subsidies which the company will receive from the Brazilian Government amount to nearly $700,000 per annum. The charter and subsidies run for 16 years.

Americans are manifesting no special interest in the Jamaica International Exhibition to open at Kingston next January. Although the time for sending in applications for space is up June 15, the number of exhibitors whose names appear on the books of Secretary Amor, in the Stewart Building, this city, is quite small, and this, notwithstanding the opportunity is said to be a good one for the display of exhibits to South American buyers.

The terrors of the Ludlow Street Jail are mitigated by the bill abolishing the fee system in that institution, Governor Hill having affixed his signature.

The decision of Judge Collins declaring the Chicago Gas Trust to be an illegal combination is received by citizens there with satisfaction. As the gas trust was formed for the express purpose of raising the price of gas 25 cents per 1000 feet, and as the organization is now declared to be illegal, they would rejoice in the action of the court if it encouraged a hope of relief from extortion.

A car company in Troy are filling orders for the Argentine Republic, Brazil and New Zealand. The export trade is the most important end of the business.

A Minneapolis paper reports the organization of a cracker trust with $10,000,000 capital. The stockholders will have crackers and water.

The directors of the Bank of Montreal in their annual report base their expectations of business prosperity very largely on the success of railroad enterprises. Railways now connect all the provinces, and penetrate the Northwest to the Pacific coast, and in November next the first of three steamers now building for service to China and Japan will be put on the route. There is also a direct road to the American Northwest, and there will soon be another line to Chicago, which it is believed, cannot fail to enlarge the commerce of Montreal.

The steel steam yacht Almy, building for Frederic Gallatin, of New York, was launched at the Harlan & Hollinsworth Co.'s ship yard, in Wilmington, Delaware, last week. The Almy is a sea-going yacht, with six water tight compartments and a steel deck. She is 176 feet long, 24 feet

beam and 13 feet depth of hold. Her engine will be of the triple-expansion surface-condensing type, with cylinders 17, 28 and 42 inches in diameter and 22 inches stroke. The dimensions of the vessel are about the same as those of H. M. Flagler's yacht Alicia, which was launched on April 19, and which is nearly completed. The engines of the two vessels are the same. The Almy is expected to make good speed, and her owner will cruise around the world in her.

A trust deed given by the bankrupt president of the A. B. Cleveland Company, seedmen, of New York, to secure an issue of $425,000 of bonds, which were distributed among the creditors, is decided by Judge Williams, of the Supreme Court, sitting at Watertown, to have been clearly void if the statements of plaintiffs are true.

Local improvements in some of the new States are summarily disposed of by cyclones and other freaks of nature indigenous to those parts. The entire village of Bradshaw, in Nebraska, was blown out of existence in a few minutes last week. Several lives were lost and property valued at $150,000 was destroyed.

Charles F. Berwind and others are the incorporators of the Delaware and New England Company whose purpose is to establish an all-rail through route by way of the Poughkeepsie Bridge and connecting roads. A large coal traffic is expected between the mines and the Eastern States.

Ohio produced over 10,000,000 tons of coal last year and could easily have made its output twice as large.

A case of great importance to Brooklyn and hundreds of its property holders was passed upon, but not finally decided, by the Court of Appeals last week. The case involves the constitutionality of the Brooklyn Arrears of Taxes law, commonly known as the Evarts act, it having been drafted by William M. Evarts, as special counsel for the city of Brooklyn. Under this act property valued at over $10,000,000 has been sold, and the title to this depends upon the constitutionality of the law. The lower courts held that it was constitutional. The Court of Appeals—the ultimate tribunal—reverses this decision so far as to order a new trial.

There is a prospect that at an early date the control of the four largest oil producing companies which own territory in Pennsylvania and West Virginia will pass into the hands of the Standard Trust interests. The companies are the Forrest, the Union, the Anchor and the Washington, and together have a capital exceeding $8,000,000. Hitherto the attention of the big Octopus has been largely directed toward crushing out all opposition in the refining of oil. This latest deal shows that it has started in to crush out the producers of the crude oil and obtain control of their property.

A Southern California man has sprung the idea of having pipe lines to convey the extracted honey from mountainous apiaries to the packing establishments in nearby towns. There is quite a revival in the apiary business this spring.

From the evidence furnished by the agents of the Mexican Land and Colonization Company, it appears that the president of the company seriously had in view a plan to annex the Californian peninsula to the British empire. It was designed to secure concessions from the Mexican Government and then to foment dissensions. Then the intervention of the mother country would be invoked.

Seven Belgian glassblowers, at the emigrant landing in this city, were found, on complaint of the American secretary of the International Federation of Glassblowers, to have been imported under contract to work for the Warrick Glass Company of New Jersey, and were returned to Liverpool.

The truss work for the roof of the amphitheater in the new Madison Square Garden was inspected for the first time last Saturday night, by various city officials and other public men. Much wonderment was excited. The amphitheater takes up all of the width and nearly all of the length of the block bounded by Fourth and Madison avenues and Twenty-sixth and Twenty-seventh streets. Overhead it is spanned crosswise by wonderful steel-truss arches of 186 feet span, said to be the largest and lightest ever constructed. These arches are remarkable for their flatness as well, and the roof which they support has a very slight slope. At either end it is oval and supported by a fan-shaped arrangement of shorter steel trusses, which reach from the side and end walls and meet in a knot in the center of one of the cross arches. The effect is as beautiful as the mechanical skill of the design and of its execution is wonderful. The central portion of the roof is a great square skylight, which is arranged to slide off in pleasant weather, making the amphitheater an open air affair. The vast arena beneath this wonderfully supported roof is entirely open and free from side to side and end to end. The only pillars are a row of light steel ones close to either wall, upon which the roof arches are supported, and they do not in any way interfere with the free view from every part of the amphitheater. Around the whole arena in a great flat sided ellipse are arranged the seats and boxes.

The great ship canal now constructing between the Baltic and Atlantic has started in Germany a new interest in ship canals, and the engineer in charge of the preliminary surveys, Herr Scheck, has decided that from Berlin to Stettin is the place for the next one, a distance of about 100 miles, the cost not to exceed $40,000,000. There is nothing but sand, plain and marsh between these two cities, and the work should not require much time or present great difficulties.

A Cleveland steamship, owned by an iron mining company, brought to that city the other day the greatest cargo ever carried by any vessel on the lakes. The Pontiac's load of 2888 tons of ore was equivalent to 3234 tons of 2000 pounds, or about 108,000 bushels of wheat. On salt water the cargo could have been made 3,400 tons on about the same draft of water. There are dozens of lake steamers which are nearly or quite equal to the Pontiac in capacity.

The icreased cost of ice is made a pretext by butchers in New York City for advancing in a still larger ratio the price of beef.

The perfection of ventilation is now attained by electricity. The new United States man of war Baltimore is supplied with an electrical ventilator which will change the atmosphere of the engine room completely in two minutes.

The New York and New Jersey Bridge Company organized by electing Andrew H. Green president, Charles M. Vail treasurer and Charles H. Swan secretary.

Albert K. Owen, who represents a co-operative colony in Lower California, has obtained valuable concessions from the Mexican government, and has contracted for a railroad from Topolobampo to the Texas frontier.

The New York Chamber of Commerce, in a series of resolutions, earnestly calls upon Congress to adopt such measures as the United States Corps of Engineers shall determine to be necessary to prevent the overflow of the Mississippi River.

MANUFACTURING.

Iron and Steel.

Andrews Bros. & Co., proprietors of the Hazelton Iron Works and Hazelton Furnace, at Hazelton, Ohio, are making a number of extensive improvements at their plants. At present they are tearing down their old foundry, and will erect a new one which will contain some new and improved machinery. Besides making castings for repairs they will cast rolls and will turn out other work not usually undertaken by rolling mills. The furnace casting house will also be enlarged. The wareroom, which has been a part of the mill, will in the future be a separate apartment.

The regular annual meeting of the Woodstock Iron Company, of Anniston, Ala., was held on May 20. The directors were authorized to issue 20 year 6 per cent. bonds to the amount of $1,000,000, and to execute a mortgage on the company's property as security for the same. The following directors were elected: A. L. Tyler, S. C. Noble, T. G. Bush, T. F. Howell, T. H. Aldrich, Jno. W. Noble and W. H. Ledbetter.

The Shiffler Bridge Company, of Pittsburgh, are about to build a large blacksmith and forge shop as an addition to their works. The building will be of iron and will be 85 x 190 feet.

The Shenandoah Furnace Company, operating the Gem Blast Furnace, at Shenandoah, Page County, Virginia, have decided to at once begin the erection of a rolling mill which will have a capacity of 600 tons finished iron per month. The Shenandoah Furnace Company, of which David A. Flickwir is president, and Edward P. Botsford is secretary and treasurer, have been remarkably successful thus far, and the Gem iron now ranks with the best of the Pennsylvania and Ohio mill and foundry brands.

The Pacific Iron Works Company have filed articles of incorporation at San Francisco. The directors are Ira P. Rankin, Willis G. Dodd, John Taylor, John R. Cross and S. O. Putnam.

Powelton Furnace, at Sexton, Pa., has gone out of blast for an indefinite period.

Thomas Furnace, of the Thomas Furnace Comany, Niles, Ohio, is idle undergoing important modifications. A new and much larger stack is being raised, and an all-iron cast house will take the place of the stone one now in use.

The Lone Star Iron Works, Jefferson, Texas, have awarded the contract for 22 coke ovens to furnish coke for the furnace.

The Lawrence Iron and Steel Company, of Ironton, Ohio, are considering the removal of their works to Ashland, Ky.

The Roanoke Iron Company, of Roanoke, Va., have increased their capital stock from $300,000 to $500,000, and will erect puddle and plate mills.

For the past few months, one of Taws & Hartman's 5-ton fluid cinder cars has taken care of about 135 tons of cinder daily at the Everett Furnace. A second car, ordered by Mr. Thropp, has just been shipped.

Furnace C, of Carnegie Brothers & Co., Limited, at Braddock, Pa., which has been idle for some time undergoing repairs, will be blown in again during the present week. Furnace I, now in course of construction, will be ready for blast about August 15 next.

No. 3 Furnace, of the Carbon Iron Company, at Parryville, Pa., produced 452 tons of No. 1 foundry iron week before last. The largest former yield was about 350 tons.

A recent issue of the Bessemer *Iron Hand*, of Bessemer, Col., says: "During the recent run of Furnace No. 1 on spiegel ore 300 tons of that metal of the finest quality were turned out."

A press dispatch from Johnstown, Pa., under date of the 8th inst., says: "A case of considerable importance and for a large sum of money will be tried at Ebensburg this week. It is that of P. E. Chapin against the Cambria Iron Company for services rendered the company as general manager, the agreement upon which the claim is based being made for the company by the late Hon. D. J. Morrell. The company resist the claim, on the ground that they gave no authority for any such agreement."

Claire Furnace, of the Claire Furnace Company, Limited, at Sharpsville, Pa., which has been undergoing extensive repairs for some time, was put in blast last week.

The two furnaces at Decatur, Ala., shut down the first of the week for extensive repairs. The coke furnace there will be changed to a charcoal furnace, and will not be ready to go in blast again before September 1.

The contractors have commenced work in earnest on two 75-ton charcoal furnaces at Briarfield, Ala. They are to be finished by January 1, 1891.

It is said that the four charcoal furnaces of the Woodstock Iron Co., at Anniston, Ala., and vicinity, made no money during the past 12 months and will be changed to coke furnaces. The timber in the vicinity of these furnaces has been exhausted and the expense of charcoal has become too great.

Machinery.

The Peru Mower Company have been incorporated at Peru, Ind. The capital stock i $50,000 divided into shares of $50 each.

The Muskegon Machine and Foundry Company, of Muskegon, Mich., have been formed by the consolidation of two companies, one from Norwalk, Ohio, and the other from Toledo, Ohio, to engage in the manufacture of sewing machines and various kinds of light machines. A leading feature will be the manufacture of sewing machines and an electric motor to furnish power for the same.

The Westinghouse Machine Company, of Pittsburgh, sold during May amounting to 79 compound engines, with an aggregate horsepower of 5005. A number of these went to France and Germany, and one 75 horse-power Standard was sent to Brazil. Two 250 horsepower engines were sold to the Detroit Electric Light and Power Company, of Detroit, and a similar one to the Excelsior Electric Company, of Port Huron, Mich.

The Westinghouse Electric and Mfg. Company, of Pittsburgh, have recently erected two additional Garrett Furnaces for melting brass. The furnaces are each capable of melting 6 tons of brass per day of ten hours. The working of the furnaces thus far has been very satisfactory.

The Forsyth Scale Company, of Youngstown, Ohio, are operating their works full time, and yet are considerably behind in their orders. A large addition will be added to their plant in a short time.

Westinghouse, Church, Kerr & Co., whose Chicago office is at 156 and 158 Lake street, have purchased the Cragin Mfg. Company's plant located at Cragin, Ill. Three large brick buildings and other structures cover a tract of 18 acres, all of which has been transferred for $45,000. The new purchasers will use the plant for their own purposes, and expect to employ 300 men or more.

It is stated that the Scioto Machine Works, of Circleville, Ohio, will organize a $75,000 stock company to remove their iron works to Dayton, Tenn.

Tretheway & Co., Limited, of Pittsburgh, have closed a contract for four 800-pound shears for the Homestead mill of Carnegie, Phipps & Co.

The foundry of the Whittier Machine Company, of South Boston, Mass., was destroyed by fire on the 8th inst. The loss will probably reach $40,000, which is covered by an insurance of $26,000.

The Anniston (Ala.) Pipe Works are filling a Denver, Col., order for 700 tons of piping.

Another addition is now being made to the Stiles & Parker Press Company, of Middletown, Conn., in the shape of an erecting shop 30 x 80 feet. This will be provided with a traveling crane for handling the heavy castings, and will give more room in the present erecting shop for machine tools. The works are now run until 10 o'clock at night, and employ 125 men in addition to the 25 employed in the Centre street shop, in this city. A double action drawing press, weighing 70 tons, has just been shipped to Utica.

The Weimer Machine Works Company, of Lebanon, Pa., have received an order from the Weston Furnace Company, of Manistique, Mich., for one of their 30 x 72 x 48 inch poppet valve vertical blowing engines. They have also received an order from the Tennessee Coal, Iron and Railroad Company for their South Pittsburgh, Tenn., plant, for two of their 50 x 96 x 60 inch poppet valve vertical blowing engines.

The Lake Erie Boiler Works have just booked an order for six Scotch marine boilers, 13 feet diameter by 12 feet long, to insure a working pressure of 160 pounds of steam, for the Delaware River Iron Shipbuilding and Engine Works, at Chester, Pa.

Hardware.

The Burnheimer Wire Company, of Minneapolis, Minn., have filed articles of incorporation with the Secretary of State. The capital stock is placed at $20,000.

Henry Cheney Hammer Company, Little Falls, N. Y., are putting in new and improved machinery in order to meet the increased demand for their goods. We are advised that their export trade has been unusually large the past year.

Baker, McMillen & Co., Akron, Ohio, advise us that, notwithstanding the extensive addition made to the main building of their factory last fall and the improved facilities thus secured, they find it difficult to keep up with their orders. Thus far, this year, they have had more business than they could handle, although they have not been represented on the road. They are getting out a new catalogue, and hope to have it ready for distribution in about 60 days.

Chattanooga Saw Works, Chattanooga, Tenn., have recently added considerable new machinery to their plant to enable them to meet the demands of their increased business. They are very full orders.

Chicago Sewing Machine Company, Chicago, Ill., manufacturers of hot air registers, ventilators and sewing machines, have recently removed their factory to the new building, 42 and 44 North Halsted street, Chicago. The building is 45 x 130 feet, five stories in hight, and is thoroughly equipped to meet the rapidly increasing trade for their productions.

The Matchless Metal Polish Company, 82 to 88 Market street, Chicago, have just shipped 75 gross boxes of their Tripoline polish to England, and have booked an order for 150 gross from another English source. The company have also forwarded to New York, for distribution there to other points, 12,000 quarter-pound boxes of White Diamond polish on a Government requisition for lighthouse use in cleaning lenses, lamps, &c. Including previous orders, this makes about 20,000 boxes taken by the Government for its lighthouses within a year. The Navy Department has also had large quantities of the company's Tripoline polish.

The Capewell Horse Nail Company, of Hartford, Conn., in order to meet the demand for their nails, are adding new machines to their plant, which will double their former output.

The Chantrell Tool Company, Reading, Pa., have recently made additions to their plant. They refer to the completeness of their nickel plating plant, being prepared to do plating on either casting or sheet metal work. Their plant is lighted by incandescent electric light. They allude to the fact that they make it a feature of their business to manufacture specialties to order.

Miscellaneous.

The Union Elevator Company, of Pittsburgh, have received from the Armstrong Mfg. Company an order for a two-ton steam power elevator to be erected at their new works at Petoskey, Mich. This elevator will be provided with Chambers' patent automatic closing doors, which will be the largest automatic doors ever applied to an elevator, the floor opening which they cover being 12 feet square.

The Eureka Cement Company, Owasso, Mich., are meeting with much success in introducing a new pulley covering, invented by Frank Henderson, one of the members of the company. The covering consists of leather, tanned and finished by a special process which leaves it rough and pliant, and of Eureka belt cement to fasten the leather to the pulley. The cement is described as an adhesive compound which does not completely harden, but it and the pliant leather yield sufficiently to cause belting to grip the pulley instead of slipping on its surface. A number of prominent users of machinery in the West have been induced to try the company's process for covering pulleys and speak warmly in praise of it.

The Youngstown Bridge Company, of Youngstown, Ohio, received a contract last week for the erection of two large bridges in Kentucky. The firm are operating their plant at Hazleton full time and have plenty of work on hand.

Among recently authorized corporations in Illinois are the following companies: The Springfield Boiler and Mfg. Company, at Springfield; to manufacture steam boilers; capital stock, $18,000; incorporators, John McCreery, A. L. Ide, B. H. Ferguson and others. Chicago High Water Pressure Company, at Chicago; to construct and operate water works; capital stock, $5,000,000; incorporators, F. C. Crowley, W. C. Baine and Marion Pickett. Joseph Breitenmoser Milling and Bicycle Company, at East St. Louis; to manufacture devices to improve bicycles and other machinery; capital stock, $3,350,000; incorporators, T. H. Miller, R. H. Miller and J. W. Hertz. Universal Brakebeam Company, at Chicago; to manufacture brakebeams for railroads; capital stock, $1,000,000; incorporators, D. P. Slattery, W. W. Johns and E. Glogan.

The Berlin Iron Bridge Company, of East Berlin, Conn., have received the contract for the iron buildings for the Huanchaca Company, of Bolivia, South America, which will consist of a boiler house, 45 x 60 feet, an air compressor house, 45 x 80 feet, and an engine house, 42 x 75 feet. These buildings will be made entirely of iron put together in this country, taken down and shipped to Bolivia, where they will be erected by native workmen

The Maine Steamship Company have closed a contract with the Bath Iron Works, Bath, Maine, for a new steamer to take the place of the Winthrop. The new steamer will be a mate to the Cottage City, and will ply between New York and Portland, Maine.

A bill has been passed in the Senate relieving the Union Iron Works, of San Francisco, from certain penalties, amounting to $33,000, incurred in the construction of the Charleston.

The hammer shops at Pullman, Ill., were recently damaged to the extent of $1500 by fire.

The R. Bliss Mfg. Company, Pawtucket, R. I., are introducing Wood's Patent Car Platform Gate. It is referred to as being in use on the N. Y. P. and B. P. R.; they also hope to soon introduce it on other railroads. The gate is alluded to as being hung on a swinging support, as being adjustable to any style of cars, and as closing over the first step, leaving no space for any one to fall through. The point is made that the gate does not swing out upon the track. The weight of each gate is given as 48 pounds, the size as 31 x 26 inches.

PERSONAL.

James Gartland, of South Bethlehem, has been appointed manager of Sheridan furnace, at Sheridan, Pa., in place of S. S. Hartranft, resigned.

Mr. H. C. Spaulding, of the Thomson-Houston Electric Company, has been elected treasurer and secretary of the New England Electric Exchange, vice H. H. Fairbanks, of Worcester, resigned. Mr. Fairbanks takes the seat at the board vacated by Mr. Spaulding.

Gardner C. Sims, of the Arlington & Sims Engine Company, has been appointed one of the members of the World's Columbian Commission from Rhode Island by the Governor.

W. H. Woodward, general manager of the Sloss Iron and Steel Company, at Binningham, Ala., has resigned that position to accept an engagement elsewhere, and W. W. Dashiel, of New York, has been appointed to the position recently occupied by Mr. W. H. Woodward.

D. F. Gibson, the foundryman of the Alice furnaces, Birmingham, has recently resigned that position to take charge of the Tecumseh, Ala., Furnace, on the East Tennessee, Virginia and Georgia Railroad.

R. A. Edwards has succeeded to the place recently filled by John McCabe, in charge of the Mary Pratt Furnace, at Birmingham, the latter gentleman having recently died.

William Kerr, of Philadelphia, has been engaged by the Virginia Development Company, of Roanoke, Va., as engineer of mines and machinery.

William Crockard has withdrawn his resignation as manager of the blast furnace of the Riverside Iron Company at Wheeling, W. Va., and will continue with that company.

The Johnstown, Pa., *Tribune* says there is more business done there now than before the flood. About $1,000,000 have been expended in new buildings, but not more than 1000 houses have been erected thus far to replace the 3000 swept away. The enlarged plant for the Gautier Steel Works will comprise a structure 1600 feet long by 400 wide.

The Iron Age

New York, Thursday, June 12, 1890.

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GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS - - HARDWARE EDITOR.
JOHN S. KING, - - - - BUSINESS MANAGER.

Full Extras on Bar Iron.

The movement to restore full extras on small lots of bar iron continues to gather strength. So far ever jobber in the West who has been communicated with on the subject has agreed to conform strictly to this rule. Almost the entire territory has now been covered, and the sentiment is unanimous that the rolling mills should unite with the jobbers in making no concessions on extras on sales of less than carload lots. The importance with which this subject is regarded is shown by the total absence of any difference of opinion among those who handle the great bulk of the small trade. If this class of trade were entirely in their hands the whole matter would apparently be speedily settled. But there are enough mills doing a retail business through stores in large Western cities to prevent the success of the movement if they are inclined to pursue that policy. It is believed, however, that the existence of this strong sentiment will now have some influence in bringing them into line, especially as their interests would seem to be best served by cordial co-operation with their fellows in the jobbing trade.

The manufacturers of bar iron for the wholesale trade only are showing much interest in this question, and would evidently be glad to have it meet with unqualified success. The Heavy Hardware Jobbers' National Union have received a number of letters from rolling mills in various sections of the country expressing their hearty sympathy with the movement for the restoration of the card. On the part of many of the writers a strong desire is expressod in favor of a uniform card for all parts of the country, which would harmonize the existing differences between the East and the West, and would make the transactions of business much more simple for those situated near the dividing line. If a uniform card were thus adopted it could be issued to everybody in the business of handling bar iron and would strictly govern all small transactions. The rolling mills probably favor this because they see in it an opportunity to work the larger trade up to a higher plane in the matter of extras. So far as the jobbers are concerned they will take their chances of the rolling mills maintaining full extras on sales to them.

The tendency in the bar iron trade has been for some time toward a flat price for all but a few sizes which are either seldom called for or are exceptionally difficult to roll. This tendency is promoted and hastened by the cutting of extras to the small trade. Jobbers must make some profit in handling bar iron, and if they cannot get it by the usual method of charging good extras they will insist on buying from manufacturers at rates closer and closer to a uniform base price. From the jobbers standpoint, therefore, it is the manufacturers' policy to assist them in restoring card rates. In view of manufacturers' complaints about the unprofitableness of the bar iron trade, this seems a reasonable point to make. Wherever possible, the manufacturers of bar iron have gone into the production of specialties rather than depend on the open market for the disposal of their product direct from the rolls. Manufacturing centers which were once prominent in the bar iron trade have dropped to an inconspicuous position in it, while retaining supremacy in other branches of trade. It remains to be seen whether the leaders of this business in the present day and generation can restore to it something of its old time standing and attributes. If this can be brought about it will largely be based on the solid foundation of the maintenance of card rates by the jobbers.

A Government Bank.

Ostensibly the new bank recommended by President Harrison and Secretary Blaine, embodied in a bill now before Congress, is for the purpose of stimulating South American trade, by giving better facilities for the transfer of foreign American exchange. Undoubtedly, as presented, the proposition tends to advance the commercial interests of the United States, by opening new markets as an outlet for our merchandise; and it must be conceded that if exchange between the United States and South American countries can be transferred from London to, say, New York, the result will be a marked stride toward the obtainment of the $1,100,000,000 annual trade in these South American countries, of which nine-tenths is secured by others. The question, however, is whether the proposed bank can bring about the favorable condition of affairs aimed at. It would undoubtedly have its influence; but how will it overcome the central fact that now prevents this interchange of commerce, which is, that Europe offers its wares, as a rule, at much lower prices than we can afford to sell at. Is a bank of any kind, however large its capital, in a position to cause South American merchants to buy goods of us that they can obtain elsewhere from 25 to 50 per cent. cheaper? This is the real point to be considered in connection with the measure proposed.

Consular reports from many South American countries do not clearly state the actual reason why our South American trade is comparatively so light. As a rule, these consuls do not seem to know that the prices of goods sold by England, Germany and France—in most lines—are considerably below our own; consequently their communications with our Department of State lead our chief representatives to think that we do not get our proper share of this trade because we lack communicating facilities, which includes steamship service, banking and commercial representation in these countries by our manufacturers. Consequently our Department of State frequently urges subsidized steamships, and in the present case an international bank, and such other means as are the effect of commercial intercourse rather than its incentive. Undoubtedly these suggested means all tend in the direction aimed at, but do they not reveal a lack of practical business knowledge with the ways of ordinary traffic? Many of our merchants, knowing well that they cannot compete with Europe, imagine that because our State Department takes such an attitude there must be some reason which is not publicly made known. But the sole reason is the simple fact that our consuls rarely compare prices in their reports, so that little is known by the Washington legislators of what the issue really is.

This new bank, if the bill is passed and it is established, will undoubtedly find business enough to do, whether it be in behalf of a South American trade or anything else. While our Treasury Department is conducted in an unexceptionable manner, a bank of the proposed kind is entirely another affair. A bank loans money; our Treasury Department does not. Therein is all the difference between two financial departments conducted by the same management. Our bankers would like very much to suppress this new bank, which more or less threatens to affect their business. And they ask: "With what justice is this international bank organized without the double liability of the stockholders imposed upon all national banks?" The question is exceedingly proper, and an answer from the projectors of the bill would certainly be in order. Bankers assert that such a bank would tend to develop unbusinesslike habits among influential people in Washington, who, finding it comparatively easy to obtain ready cash, will be led to do acts that the absence of such a temptation would not lead to, and others of a more conservative disposition would, in the rush for spoils, become unwittingly parties to a general raid. It is probable, too, that "influence" would do more toward the obtainment of loans from such a bank than actual responsibility.

Our bankers hold that this Government did enough in the banking line years ago, and they have no desire to see such an abuse of privilege as a bank of this kind is likely to stimulate. They add: "If there is any South American business to be done there are plenty of existing banks ready to do it, but until a demand is made by our commerce, the field is not large enough to warrant the existence of a specially chartered institution with $25,000,000 capital."

The course of prices of old material in the West has been exactly in conformity with the opinions expressed in our issue of May 8. The demand is in excess of the supply, and prices are moving upward. In old iron rails an advance of $2 per ton from the low price recently ruling

has been made at Chicago, and the indications are strongly in favor of further advances. The supply is limited, and holders are impressed with the belief that they will shortly be able to name their own terms. They base their opinion on the fact that so many mills have adapted their machinery to the manipulation of old rails, and will pay a higher proportionate price for them than for other material. This is true, but these mills will not pay an exorbitant price unless they can advance the price of their finished products to correspond. The condition of the iron market will hardly justify this view of the situation. There are still plenty of iron rails in the tracks of Western roads, and any material advance in their price will swell the supply from that source quite rapidly. It seems an absurdity to expect old rails to reach $30 at Chicago, but that is now the price named in all seriousness by some sanguine holders. An approach to such figures would cause much of the iron trackage to be torn up and replaced with steel rails at comparatively slight additional cost. Other old materials are sympathizing with rails, being equally scarce and in good demand from axle makers and other important consumers.

A Significant Trade Movement.

A matter which has been the source of some comment lately is the prominence which the West, and Pittsburgh in particular, occupies as a leader in the iron and steel markets. Relatively the East has declined in importance, and this is more particularly true of New York. One cause for this decline is not far to seek. The falling off in imports, through the growth of our home industries, has shorn the seaboard cities of a trade which once was large. One by one the branches which were influenced by foreign markets have emancipated themselves. The Scotch iron importations have dwindled until only those are willing to pay for the metal who cling to time honored mixtures, or who have not learned or will not learn how to substitute American irons. Once thousands of tons of foreign Bessemer pig iron were sold in tidewater markets. Now only occasional small lots of special iron are purchased for American account. Enormous quantities of steel billets, blooms and slabs came into New York, Philadelphia and Baltimore. Now sales have become so infrequent that few importers can quote off hand. The American rod mills have captured the market for common wire rods, so that that business also has practically gone, at least for the present. There is very little prospect, too, that steel rails will figure prominently in the import lists, unless the demand for them developes in an unexpectedly extraordinary degree. The only articles for which we still largely depend upon foreign makers for the greater part of our supplies are spiegeleisen and ferromanganese. In both the American production has very considerably increased during the past six months, more rapidly probably than the total demand.

But there is, we believe, another very potent cause for this movement, general in its character. With the westward movement of the center of our population and our wealth, the consuming markets have moved towards the Mississippi. It is west of the Allegheny Mountains, and in the South and Southwest in which the greater part of the new development is progressing. For new work the requirements for iron and steel are always enormously larger than they are for simple renewals or repairs. Local productive capacity has fully kept pace with this development, and in many places has gone ahead of it. The result has been that the share which once the Eastern mills had in this business has dwindled down to small proportions, and that at times the Western works have turned the aggressors, invading the Eastern markets. As soon as the demand in the West shows signs of falling off Western mills appear as low sellers in the Eastern markets, which recover only when their competitors find more remunerative business at home. The result has been that the leadership in the markets of the country has been assumed, and seems destined to remain in the future, with the Western centers of production. This has, of course, been a matter of gradual growth. It has been foreseen by far-sighted men. It is no new discovery, but it has never been so emphasized as during the past year.

There is no remedy for it. It is the result of natural causes. We do not believe that it is due, except in an unimportant degree, to a lack of enterprise on the part of the trade East of the Allegheny Mountains. We no not believe that the temperament of the body of men in the different sections plays a very important part, but no one will question that there is such a difference. The Eastern trade is more conservative. It is less likely to be carried away by sudden revulsions of sentiment—a fact which, however, is probably due to the circumstance that fluctuations in the demand are less violent.

OBITUARY.

D. B. SPOONER.

the inventor of the Spooner Water Meter, who died at the Boston City Hospital on Sunday last, was a noted inventor and a man of great mechanical genius. He was born in 1830. For a number of years he was at the Springfield Armory, but left there to establish himself in the photograph business in Springfield. He was the first man in Massachusetts outside of Boston to make photographs. In 1867 he went to Syracuse and followed the profession of a portrait artist. He first conceived the idea of a water meter about 1850, and from that time he devoted his attention to perfecting it. In 1870 he completed it. The Remington Company manufactured it for a long time, paying heavy royalties. In 1880 he went to Boston and tried to have his invention introduced in that city. Mr. Spooner never recovered from the disappointment arising from its rejection. He also invented the telemeter. Like most inventors, Mr. Spooner had little business capacity and died in poor circumstances.

JOHN T. DAVIS.

On Wednesday, May 28, John T. Davis died at his home in Wilmington, Del., after a lingering illness. Born in Bristol, England, April 4, 1826, he was one year old when his parents returned with him to Wales. There his active life began very early, as he left school when nine years old, and acquired his first knowledge of iron making from working in the mills of Wales. In his youth he sought opportunity day and night to acquire knowledge, and early became skilled in drafting and mechanical designing. He came to America in 1845 and worked at pattern making until 1864, when his health failed, and he went into the iron business, and commenced his career with the Diamond State Iron Company as foreman. At that time the company employed but 40 hands. With the exception of one year spent as superintendent of the plant of the Catasauqua Mfg. Company, and a year spent in the construction of a rail mill at Alliance, Ohio, he had been continuously with the Diamond State Iron Company since, for the past five years as general superintendent of the entire works. During this time the establishment has enlarged until now the company is employing 1000 hands, and their buildings cover nearly ten acres of ground. As a manager he insisted upon every employee performing his full duty faithfully, yet gained the love of his men by his unselfish sympathy and assistance whenever it was needed. His great pleasure was in bettering the condition of worthy workingmen, and to this end he gave a great deal of time and labor officially to building and saving associations in his city.

Pig Iron Production.

THE OUTPUT STATIONARY.

A falling off in the anthracite iron output, compensated for by a slight increase in the production of coke iron and a more marked increase in charcoal iron, leaves the total current production practically stationary.

As compared with previous months the record stands as follows:

	Furnaces in blast.	Capacity per week.
June 1	345	180,79
May 1	344	180,099
April 1	344	178,474
March 1	343	180,991
February 1	334	173,651
January 1	333	174,098
December 1	328	169,151
November 1	323	165,225
October 1	311	151,057
September 1	294	134,068
August 1	286	145,899
July 1	285	141,419
June 1	286	137,119

The status of the anthracite furnaces was as follows:

Anthracite Furnaces, June 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	23	11	3,986	12	2,925
New Jersey	14	7	2,971	7	2,466
Spiegel	3	3	201	0	0
Pennsylvania:					
Lehigh Valley	46	37	13,559	9	2,705
Spiegel	1	1	50	0	0
Schuylkill Valley	37	22	8,929	15	4,390
U. Susquehanna Valley	18	11	3,420	7	1,870
Lebanon Valley	16	13	6,446	3	1,566
L. Susquehanna Valley	16	10	4,930	6	1,465
Spiegel	2	2	650	0	0
Totals	176	117	45,142	59	17,365

For the past 15 months our records show the following:

	Furnaces in blast.	Capacity per week.
June 1	117	45,142
May 1	123	46,912
April 1	119	46,110
March 1	115	45,790
February 1, 1890	107	43,905
January 1, 1890	105	42,857
December 1	100	40,053
November 1	96	40,603
October 1	94	36,556
September 1	93	35,997
August 1	88	34,277
July 1	89	34,142
June 1	91	34,396
May 1	95	35,315
April 1	102	37,977

In New York the current output was lessened by the stoppage of one of the Crown Point furnaces. Onondaga No. 1, remodeled to 62 x 17 feet, is now drying out, and is expected to go into blast on the 20th inst. In the Lehigh Valley one of the Glendon furnaces blew out during May, while on the Upper Susquehanna district Lackawanna stopped one furnace for repairs. Marshall is banked and Red Point was forced by two breaks in the hot oven and a break down of the engine to blow out. The furnace will resume in two weeks.

On May 1 the position of the coke furnaces was as follows:

Coke Furnaces, May 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	4	3	3,550	1	500
Pennsylvania:					
Pittsburgh district	20	18	22,866	2	3,000
Spiegel	2	2	1,619	0	0
Shenango Valley	19	15	11,014	4	2,276
Juniata and Conemaugh Valley	17	10	5,748	7	3,818
Spiegel	1	0	0	1	500
Youghiogheny Val	5	4	2,193	1	173
Miscellaneous	4	3	1,144	2	1,090
Maryland	5	2	3,640	3	3,830
West Virginia	6	4	2,573	2	620
Ohio:					
Mahoning Valley	15	11	9,584	4	3,160
Central and Northern	18	14	11,691	4	3,340
Hocking Valley	15	4	1,450	11	2,307
Hanging Rock	14	8	1,930	6	810
Indiana	2	2	323	0	0
Illinois	14	12	13,164	2	2,120
Wisconsin	4	4	2,896	0	0
Missouri	6	2	1,164	4	1,200
Colorado	2	1	450	1	430
The South:					
Virginia	13	10	5,339	3	1,301
Kentucky	4	3	936	1	310
Alabama	36	26	16,650	10	6,250
Tennessee	12	9	3,946	3	1,450
Georgia	2	1	489	1	330
Totals	240	167	123,340	73	38,019

As compared with the 15 previous months, the active coke furnaces make the following showing:

	Furnaces in blast.	Capacity per week.
June 1	167	123,340
May 1	169	122,480
April 1	173	121,560
March 1	169	122,596
February 1	169	118,368
January 1, 1890	169	119,396
December 1	162	116,319
November 1	160	112,209
October 1	154	102,454
September 1	141	96,744
August 1	137	96,720
July 1	136	96,584
June 1	135	91,771
May 1	147	98,399
April 1	151	100,060

In New York, Troy is now running its three furnaces. Tonawanda is to be equipped with a new shell and three Cowper-Kennedy hot blast stoves, to be completed by November. In the Shenango Valley, Fannie has been producing in May, and Claire blew in on the 2d inst. On the other hand, however, one of the Stewart furnaces stopped on the 22d ult. for relining. On the Juniata and Conemaugh, Powelton now has both its furnaces idle. Among those which we group as "Miscellaneous" Rebecca is out of blast, leaving only Center and Cameron running.

The Mahoning Valley is again running very full, and at an early date Mary furnace, with larger capacity, will resume. Among the furnaces grouped as "Central and Northern," the Cleveland Rolling Mill Company have their entire plant of three furnaces producing, and Franklin has blown in. Steubenville, however, has stopped for relining. In the Hocking Valley, both Fannie furnaces are idle.

No changes are to be recorded among the coke plants of Illinois, Indiana or Wisconsin. In Missouri the furnace of the St. Louis Ore and Steel Company has gone out since the opening of the month.

In the South we may note that the one Longdale now undergoing repairs has resumed since the 1st inst. In Alabama, the majority of the furnaces are making heavy records. Williamson was added to the list of producers toward the close of May. There are no changes to note in Tennessee or Georgia.

The status of the charcoal furnaces was as follows:

Charcoal Furnaces June 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New England	14	7	558	7	530
New York	8	2	294	6	633
Pennsylvania	16	5	485	11	660
Maryland	6	3	340	3	310
Virginia	18	2	90	18	770
Ohio	11	7	410	4	170
Kentucky	2	0	0	2	196
North Carolina	2	1	70	1	70
Tennessee	6	3	789	3	330
Georgia	2	2	480	0	0
Alabama	14	10	2,375	4	1,107
Michigan	24	13	4,253	11	3,480
Missouri	2	2	582	0	0
Wisconsin	6	2	1,250	4	918
Texas	1	1	170	0	0
California	1	0	0	1	120
Washington	1	0	0	1	190
Oregon	1	1	266	0	0
Total	135	61	12,312	74	9,484

As compared with previous months, the year began as follows:

	Furnaces in blast.	Capacity per week.
June 1	61	12,312
May 1	52	10,698
April 1	52	10,804
March 1	59	12,006
February 1	58	11,378
January 1, 1890	59	11,485
December 1	66	12,779
November 1	67	12,893
October 1	63	12,047
September 1	60	11,327
August 1	61	11,902
July 1	60	10,727
June 1	60	10,962
May 1	54	10,629
April 1	53	10,173

In New York Copake is to go into blast on the 15th. In Pennsylvania Falling Spring started on June 2, and Eagle is soon to follow. Pine Grove lost two weeks during May. In Maryland Muirkirk is again running, and Isabella is to start on the 20th. In Virginia, Beverley and Reed Island are producing, and Cedar Run was to start on the 5th. In Ohio, Bloom started on the 26th, Mount Vernon on the 19th, and Scioto is going in at an early date. Olive lost some time in May. Antrim, in Michigan, has its two stacks making iron. Peninsular went out on May 2, but was started again on June 3. In Alabama Rock Run is to blow in at an early date. The prospects are, therefore, in favor of a further increase in the production of charcoal iron.

Stock reports from 51 anthracite furnaces, with a weekly capacity of 18,823 tons, show that they are carrying 48,222 tons of iron—in some cases, however, for consumption at the mills controlled by the same concerns. Furnaces running on coke, to the number of 121, with few exceptions running, report an aggregate stock of 273,577 tons, their weekly capacity being 93,699 tons. Relatively the charcoal furnaces, as is well known, carry much heavier stacks. Forty-two stacks, of which 11 are idle, with a total capacity of 5735 tons weekly, report a stock of 54,918 tons. Altogether, therefore, 214 furnaces, with a weekly capacity of 118,257 tons, are carrying stocks of 376,717 tons. For so great an industry the stock thus indicated is certainly by no means heavy.

CORRESPONDENCE.

What is the Matter With the Nail Market?

To the Editor: To a casual reader seeking an answer to this question, the recently issued official directory to the Iron and Steel Works of the United States, carefully compiled by James M. Swank, general manager of the American Iron and Steel Association, from the most direct sources of correct information, covering the nail product and capacity in the States up to November, 1889, will prove interesting and valuable. He gives the total cut and wire nail products in 1887, 1888 and 1889 as follows:

	Kegs.
Cut nails produced in 1887	6,908,870
Wire nails produced in 1887	1,250,000
Total, 1887	8,158,870
Cut nails produced in 1888	6,493,591
Wire nails produced in 1888	1,500,000
Total, 1888	7,993,591
Cut nails produced in 1889	5,810,758
Wire nails produced in 1889	2,200,000
Total, 1889	8,010,758

The above figures, unquestionably reliable, clearly show the going out of use of the cut nail and the rapid coming into favor of the wire nail. They prove also the absence of any increase in the annual production, which really indicates the actual consumption. The total production of wire nails, as given in *The Iron Age*, page 876, May 22, 1890, as being 600,000 kegs in 1886, has gradually increased annually to 2,200,000 kegs in 1889, while the product in cut nails, which in 1886 was 8,160,973 kegs, has gradually diminished to 5,810,758 kegs in 1889; an actual decrease in the annual product of cut nails from January 1, 1886, to December 1, 1889, of 2,350,215 kegs, and a decrease in the total production and consumption of cut and wire nails from 1886 to 1889 inclusive, of 750,215 kegs. This, by the way, has occurred in the face of the rapid increase in the population, and the constant unparalleled improvements going on throughout the States. It suggests the question, Why there has been the evident decline in the consumption of nails, which I will refer to hereafter. The cut nail manufacturers will, however, discover the fact in these figures, that with no material variation in the total production the increase in the production of wire nails from 1886 to 1889 has been 1,600,000 kegs; and that a number of new wire nail factories are being built, and a large increase of new nail machines are being added to many of the wire nail mills now in operation.

These results will necessarily lead inquiring, experienced minds to a closer and more thoughtful consideration of the causes that exist and induce the present depressed and unsatisfactory condition of the nail business. The developments of the present are but the outgrowth of the conditions of the past, particularly so covering the period beginning June 1, 1885, the date of the inauguration of the great nailers' strike west of the Allegheny Mountains. It laid the foundation for strife and discord between manufacturers, as well as in the labor organizations, in both of which the harmony and unity that previously existed has not as yet been recovered.

To correct and improve the condition of affairs, many plans and schemes were unsuccessfully set on foot in the past, but which, in their reactionary influences, they created greater demoralization and distrust between the manufacturers. They bred a distrust in the trade generally as to the ability of the manufacturers to establish any permanently practicable system of relief; for, while it is true that the influence of an advance in values in any and all lines stimulates demands and invariably brings improved margins to the dealer, the insatiate desire for low prices, constantly indicated by the jobber, who stands midway between the manufacturer and the consumer, ever "bearing" the market, ought by this time to have taught the manufacturer independence of character in the protection of his own interest. The fact is, that the trade is as dependent upon the manufacturer for his goods as are the manufacturers upon the trade for their orders. It is unquestionably true that the question of maintaining prices is ever fought out between the manufacturer and the jobber or dealer; for, after all has been done and said, it matters but little to the consumer, the man who has a house or barn to build, whether the price of nails shall be $2 or $2.40 base. The kind of a nail is another and entirely different matter. From the standpoint of one who has had about 45 years' experience in the nail business, when there were but 12 nail machines in Wheeling, W. Va., I am free to say that a fixed and honestly observed card on cut nails of $2.40 base, with the usual discounts of 10 cents per keg on car lots and 2 per cent. for cash in 10 days, is as low as nails should be sold, in comparison with all other iron and steel products. It would prove satisfactory to the consumer. But even the adoption of this suggested improved condition could afford but temporary relief.

There is another and more important disturbing factor which cannot be ignored, since it is vastly more potent and destructive in its influence upon the present and prospective future of the nail trade than can possibly be overcome by pooling plans and stereotyped ironclad contracts, the success of which depends upon the cooperative favorable influences of two diverging interests represented in the jobber and manufacturer. It is the old law of supply and demand which regulates the market values of all commodities the world over. It cannot be ignored with impunity. That this matter may be intelligently understood by all, and especially by those who are unconsciously and unwisely investing in a still further increase in productive capacity in nail machinery, allow me to present to your readers briefly the facts as they exist to-day.

The number of cut nail machines in the States, equipped and ready for active operation upon short notice when the market value justifies it, as given by James M. Swank in his official statistics, corrected and compiled up to November, 1889, foot up 6166 nail machines, not including a number of small cut nail and tack factories in the States that produce 20,000 kegs of small cut nails annually. Experience shows that the average daily capacity per machine in the ordinary cut nail factories runs ten kegs of various sized nails. Taking it for granted that if the demand and price justified it, these 6166 machines could and would be operated 11 months of 24 days each, which would yield an annual product of cut nails of 16,278,240 kegs. Mr. Swank does not give the number of wire nail machines operated in 1889, but gives the wire nail product of 1889 as having been 2,200,000 kegs. This product was made in not to exceed more than half running time during the year from all reports. This indicates that the annual productive capacity, full running time, on the basis of nine kegs per machine per day, is of 4,400,000 kegs. This would place the annual productive capacity of cut and wire nail machinery in the States on January 1, 1890, say, at 20,678,240 kegs. Deduct therefrom the annual average product, which means consumption, covering the years 1886, 1887, 1888 and 1889 of 8,176,032 kegs, and there is reached the measure of excessive nail machine capacity on January 1, 1890, of 12,502,208 kegs.

With such a showing, what can any intelligent, practical manufacturer expect to accomplish through any pooling plan or written contracts, in the face of unrestricted production? The experience of 1887 and 1889, with their two forced boom periods inaugurated for temporary relief, was a speed resulting disastrously. It proved the utter futility of attempting to secure beneficial results through any such methods. Taking the product of cut nails in 1889 as given at 5,810,758 kegs, you will find that the number of machines required to produce, say, 6,000,000 kegs per annum, which is more than likely to be the extent of the annual demand for cut nails in the future, is 2300 machines. They will cover the demand, leaving a surplus in nail machines in the States of 3866 machines. Taking it for granted, as the figures covering 1886 to 1889 inclusive warrant, that any and all increased demand for nails in the future will be supplied from the increased productive capacity of wire nail machinery, the true and legitimate policy of the cut nail manufacturers, who are fully equipped with furnaces and steel plants in connection with their nail factories, who desire to continue in the cut nail business, is to organize a company with sufficient capital to buy up the outside machinery of 3866 machines and work them up so as to take them out of existence. This course would prove more satisfactory to those remaining in the business, and better the condition of all the companies now holding this excess of machinery, who are not equipped as they should be to meet the competition of the better equipped and more anvantageously located works. The remedy is a radical one, and yet it is the only prescription that a close and careful diagnosis of the case will warrant.

The pernicious and exceedingly unbusinesslike practice that has fastened itself upon the nail manufacturers, only as far as I know, that of allowing the countermanding of orders at the will of the purchaser without the consent of the manufacturer, and in the absence of any good legal cause, has been in existence for several years. It is but a vicious outgrowth of the evil influences of over-production into which the manufacturer has been gradually led through fear of losing his trade in times of overstocked markets. It is a practice that should be stigmatized and characterized as disgraceful and dishonest in any business transaction, and should disqualify the participant for all honorable business association and gentlemanly recognition. This method of treatment applied to such cases would be much more effective as a corrective than the effort now on foot to secure the signatures of such reprehensible characters to a written contract.

If the manufacturers have not enough faith in each other to determine upon the enforcement of methods and honorable practices necessary to the proper conduct of their business they will find it a useless task and waste of time to seek assistance from those who have been the dishonest beneficiaries of their long-practiced indiscretions. If a merchant places his order for 1000 kegs of nails to-day at a fixed agreed price and the card advances 25 cents, he will not only expect but will demand the execution of his order. Why, then, should the manufacturer permit the merchant to cancel his order in the event that the card should decline 25 cents after the placing of his order. The permission of such a practice is but the result of business cowardice on the part of the, manufacturer, experienced only, as a rule under the influences of over-production.

Yours truly, W. H. POWELL.

BELLEVILLE, ILL., June 6, 1890.

The Chicago Engineers' Meeting.

At the last regular meeting of the Western Society of Engineers, held in Chicago, the Chicago railway problem was again a leading topic of discussion. A very radical and ingenious paper was presented by Max E. Schmidt upon that subject. In the course of his remarks Mr. Schmidt said:

"One glance at the city map reveals the seriousness of the situation and the urgency of the demand for a speedy remedy. Indeed, it seems impossible that Chicago can keep up that phenomenal growth in wealth, area and population which has distinguished it in the past without a radical change in the railway arrangements as they exist to-day. In reference to this problem the suggestion has been made to propose a remedy which would be sweeping and complete.

"It is in line with this suggestion that I lay before you, not a plan nor a scheme, but simply an idea. I refer to nothing less than to the possibility of uniting all the railways which enter Chicago, at a point five or six miles west from the City Hall, and to provide one wide entrance by which all the railways might come in side by side on parallel tracks and discharge in one commodious union depot.

"Considering the geographical position of Chicago, whose entire east side fronts the lake, such an arrangement would certainly be most desirable. The deflection of the tracks toward the west begins in the Southern division at Calumet, and in the northern division at Evanston. All the roads are gathered up so that the growing line of tracks follows more or less closely the present Belt Line Railway. That is to say, each road, as it approaches the Belt Line, instead of crossing it makes a turn and occupies the tracks already in place. When the stem is reached all tracks turn back east to occupy the tracks that are provided for their common entrance into the city. This would bring into existence one broad and many tracked belt railway, on which the Pittsburgh and Fort Wayne in the southern division, and the Northwestern in the northern division, would occupy the inside tracks. Every road would remain independent, but have direct track communication with its neighbors. There would be practically no grade crossings within the city limits, no delays, no gates, no accidents. All freight not destined for the city proper would be shifted at the Chicago union transfer yards, while for the handling of the Chicago freight track space and sheds could be provided on wings of the elevated embankment near the terminus. The first three or four miles west of the terminus should be composed of a solid earth embankment, raised at least 15 feet from the street grade, and held in place by two strong masonry retaining walls. Communication between streets running transversely should be kept open by means of masonry archways, lighted by electricity.

"If this measure were adopted, the natural course of events would lead the city industries to follow the railways to where tracks could be provided for them, and the difference between the cost of central and suburban property would go a long way toward covering the expense of their removal. For the city their disappearance would not necessarily be a loss,

if for no other reason than that their departure would result in the removal of at least one of the causes that combine to make this city one of the smokiest and dirtiest in the country."

At the conclusion of the reading of the paper E. L. Corthell presented a resolution that a committee of seven be appointed to consider and report upon the railway problem of Chicago, in relation to terminals, rapid transit, marine commerce and related interests. Such a committee was appointed, with R. P. Morgan as chairman. He was given power to nominate six others to serve with him. Mr. Corthell also introduced a resolution favoring the appointment of a committee of five to prepare the preliminaries for an international engineering congress, to be held in Chicago during the World's Fair. In speaking on the resolution, he said: "This is the first time in the history of engineering that there has been a proposition to have an international congress of engineers. It seems strange to me that it has not been done before. The physicians have their international association which meets triennially. The engineering profession is nearly as old as the medical, and there is abundant reason why we should form a congress. Engineering, as a distinct profession, has existed only half a century. Before that time engineers were merely apprentices, but now a man to become an engineer must gain the rigid training of a college course. We take the graduates of engineering schools into our offices, and in a short time they are worthy to be called professionals. We have come to the point where we should celebrate our emergence from the trade to the profession by holding an international congress in 1893. We shall get great good from it. Associations with the great engineers from all nations of the earth would be productive of much increased knowledge."

Mr. Corthell was made the chairman of the committee. It is altogether likely that the congress will be held, and energetic steps to that end will be taken before June 18, when the society will have a special meeting to consider the matter. After the reading of a memorial looking to the erection of a suitable monument to the memory of Captain J. B. Eads, the famous engineer, at St. Louis, the meeting adjourned.

Another New Street Car Motor.—A new street car motor, called the Connelly Gas Motor, was tried in Chicago last week over the tracks of the Lake street road from Western avenue to Fortieth street. Two round trips were made, and it was found that the motor could make the trip in about one-half the time that it now takes using horses as the motive power. The principle of the motor is novel. A large iron tank filled with absorbent material is charged with heavy naphtha. Atmospheric air is admitted automatically to this cylinder and drawn through it. Thus carburetted it is supplied to the engine. In the cylinder each fresh charge of carburetted air is ignited by an electric spark supplied by a small dynamo, run by the engine. The ignition of the charge, as in the ordinary gas engine, is the source of power, but by a very ingenious system after the work has been done in the main or high pressure cylinder it is made to do duty in a low pressure cylinder, partly as motive power and partly as a pump to drive fresh quantities of air through the carburetter. The power generated is transmitted to the gearing and axles by a special form of friction pulley which can be slowly brought to bear, thus starting the car easily and without jar, and when the car is to be stopped instantaneously removing the power and leaving only the momentum of the motor and train to be overcome.

TRADE REPORT.

Chicago.

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, June 11, 1890.

(By Telegraph.)

The volume of business continues large in nearly every branch of the trade, with excellent prospects of its continuance. Heavy consumers of Iron and Steel are fast coming into the market and placing contracts to cover their requirements for the remainder of the year. Some are inclined to be conservative and are working for a decline, in the hope that they will be able to do as well as last year, when prices ruled so very low; but at present writing the chances seem to be against their success.

Pig Iron.—Pig Iron is the only commodity among heavy products which cannot be called firm with an upward tendency. Large orders for Coke Iron are being booked by furnace companies and the market is very active, but prices have not advanced and the buyers of the past week have done as well as those who placed their contracts the previous week. Exceptions exist in the case of the leading Southern furnace companies, whose agents appear to be adhering strictly to the advance recently made. A heavy demand is noted for Lake Superior Charcoal; a few season contracts have been made, but the majority of buyers have not yet closed. A contest of endurance is in progress between buyers and sellers, and it remains to be seen which will come out victorious. Thus far the Charcoal companies have presented a firm front. Cash quotations are as follows:

Lake Superior Charcoal	$20.00	@	$21.00
Local Coke Foundry, No. 1	16.50	@	17.00
Local Coke Foundry, No. 2	16.00	@	16.50
Local Coke Foundry, No. 3	15.00	@	15.50
Bay View Scotch	16.50	@	17.00
Am. Scotch (Strong Soft), No. 1	19.25	@	20.00
Jackson County, Soft and Silvery, No. 1	17.75	@	18.25
Southern Coke, No. 1	16.50	@	.....
Southern Coke, No. 2	16.00	@	.....
Southern Coke, No. 3	15.50	@	.....
Southern, No. 1, Soft	16.00	@	.....
Southern, No. 2, Soft	15.00	@	.....
Southern Gray Forge	15.00	@	.....
Southern Mottled	14.00	@	.....
Tennessee Charcoal, No. 1	19.00	@	.....
Missouri Charcoal, No. 1	18.50	@	.....
Alabama Car Wheel	23.00	@	24.00

Bar Iron.—The market gains in strength. Car specifications brought 1.70¢ flat, on the last transaction of importance, which was an advance of $1 ℔ ton. On stock specification 1.75¢, half extras. Chicago seems now to be the ruling figure for mill lots. Jobbers are pushing up their prices, and are charging their general trade 2¢ for Common Iron, with 1.90¢, bottom, to very best customers.

Structural Iron.—No change is noted in price, but the demand is good. The local architectural works are busy on small jobs, no large contracts having recently been closed, although a number of very important structures are fast being put in shape for bids. Carload lots, f.o.b. Chicago, are quoted as follows: Angles, 2.25¢; Tees, 2.65¢; Beams, 3.20¢; Universal Plates, 2.45¢; Car Truck Channels, 2.40¢ @ 2.50¢. Beams sell from store in small lots at 3.70¢, but Angles and Tees at 10¢ @ 15¢ ℔ 100 above carload prices.

Sheet Iron.—Sales have been made at 3¢ at mill for No. 27; Common and large orders are still in the market which have not been placed. Galvanized Iron keeps up to the average of the past two or three weeks in volume of business, but manufacturers are determined to get more money, and some of them have withdrawn from the market until an improvement occurs. Jobbers quote 3.30¢ for No. 27 Black Sheets, and 65 % off for Juniata Galvanized.

Plates, Tubes, &c.—For Plates the demand has been fair and the market firm. Manufacturers are strong in their views and store prices are firmly held with a tendency toward outside prices; even to the larger trade Tubes are stiff. Jobbers quote as follows: Nos. 10 to 14 Iron Sheets, 2.70¢ @ 2.80¢; do., Steel, 3¢ @ 3.75¢; Tank Iron, 2.60¢ @ 2.70¢; Steel, 2.80¢ @ 2.90¢; Shell Steel, 3.25¢; Flange Steel, 3.50¢; Fire Box Steel, 4.50¢; Rivets, 4¢ @ 4.25¢; Norway Rivets, 40 %, off; Tubes, one three-quarter and less, 40 % off; two to four and a half, 50 % off; larger, 52½ % off.

Merchant Steel.—Agricultural implement makers are beginning to come into the market. Plow manufacturers have asked for bids on their season's supply, but steel men are chary about making figures in June. The indications point to a much heavier demand than any previous year. Store trade has been very good latterly, showing a satisfactory condition of local industries. Last week it was particularly heavy. Prices for future delivery are being withheld, on account of the advancing tendencing in raw material, but for immediate delivery the following quotations are made: Open Hearth Spring, 2.75¢; Open Hearth Machinery, 2.60¢ @ 2.75¢; Toe Calk, 2.60¢ @ 2.80¢; Bessemer Machinery, 2.25¢ @ 2.30¢ Crucible Spring, 3.50¢; Tool, 7¢ and upward; Crucible Sheets, 7¢, 8¢ and 10¢.

Steel Rails and Supplies.—A quiet week is reported in Rails, with no large lots coming forward. The local manufacturers have all they can do at present, and expect to have their full capacity engaged for the whole of this year. They quote $35, and are so far undisturbed by reports of low sales in the East that they believe the market here will shortly sustain an advance of a dollar at least. In Splice Bars a very good trade is in progress, with Soft Steel quoted at 2¢ @ 2.10¢, and Iron 1.90¢. Spikes are sold in a small way at $2.00, but large orders command special prices, as the manufacturers are not working in harmony. Bolts with Hexagon Nuts are quoted at 2.95¢ @ 3.05¢, according to conditions of sale.

Old Rails.—The railroad are offering considerable quantities of Old Iron Rails, but ask high prices for them. Old Street Rails are also coming on the market. Thus far there has been no sign of a break in the upward movement of prices. A sale was made the past week at $24.75. The range of the market now seems to be $24.50 @ $25. Old Steel Rails are less sought for except long lengths, which always seem to be in demand. They are quoted at $19 @ $21, according to length. Old Car Wheels have again been very active at $19 @ $19.50, but consumers now seem to be well stocked.

Scrap.—The largest transaction reported was a sale of 500 tons of No. 1 Railroad Wrough at $18.75; No. 1 Mill is very scarce and some dealers ask $17 for what they have in their yards. The country accumulation of Scrap is increasing, large quantities being offered the dealers from such sources. The supply is needed, as the demand is growing steadily. Dealers' selling quotations are as follows: Per net ton Machinery Cast, $13 @ $14; No. 1 Mill, $15 @ $16; No. 1 Railroad Wrought, $19; No. 1 Forge, $18.50; Pipes and Flues, $14; Cast Borings, $8.75; Wrought Turnings, $12; Axle Turnings, $13; Stove Plate, $10.50; Mixed Steel, $14; Coil Steel, $17.50; Leaf Steel, $18; Tires, $19.50; Horseshoes, $18.50.

Pig Lead.—A confident tone is manifested by Western refiners and dealers. They regard the situation as strong be-

cause stocks in consumers' hands have been greatly reduced. Only small quantities are available for future delivery from producing centers, and refiners have difficulty inkeeping up with contracts at this point. Five hundred tons have been sold at 4.20¢ @ 4.25¢.

[*Nails and Barbed Wire quotations will be found under head of Hardware.*]

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St. } PHILADELPHIA, Pa., June 10, 1890. }

Pig Iron.—The market shows a fair degree of firmness, but there is nothing to indicate any immediate change in prices. Sellers feel somewhat more confident of their position, orders being larger, and stocks on furnace banks smaller, hence less urgency as regards new business. Consumers are very apathetic, nevertheless, and at full quoted rates there has been no heavy buying. For such quantities as are likely to be required within 30 or 60 days there is no great difficulty in obtaining quoted rates, but for the present neither side are inclined to go much beyond that. Still there is an undertone of strength which may easily develop into an advancing market, and the feeling in the trade is that such will be the outcome sooner or later. Advices from the West and South are all of an encouraging character, but markets hereabout have not responded in a way to warrant the assertion that they are controlled by outside influences. There was no such advance some months since as were made in Western markets, neither was there any such decline as followed soon after. The South will eventually make its influence felt, and does so already when a downward tendency sets in. At times the East is made a dumping ground for Pig Iron from the South and for finished Iron and Steel from the West, but it is only occasionally that this happens. Hence, while we recognize the growing importance of Western markets, we are not prepared to admit that they exercise a controlling influence in this section of the country. There is a magnificent local trade, and, while in the past year or two it may not have increased as rapidly as in some others, yet the elements of independence and permanency are as substantial as ever. An illustration of this may be seen in the refusal of the market to "boom" in response to the call from Pittsburgh and other points. The trade believe in higher prices eventually, but they are wise enough not to establish rates for others to unload on. A steady, uniform market is considered more desirable than one of wide fluctuations. For the present, therefore, sales are made at from $18 to $18.50, delivered, for No. 1 Foundry Iron, $17 for No. 2 and $15.50 @ $16 for Gray Forge. There are buyers of large lots of low grade Irons at about $1 less than these figures, but sellers are not will to shade more than about 50¢, and even then stipulate for early deliveries. On the whole, the market may be called steady and firm and moderately active at unchanged prices.

Bessemer Iron.—Orders are still in abeyance. There is plenty of inquiry, and indications of a desire to place orders, but buyers are not entirely satisfied to pay the advance which is generally demanded. Furnaces are well sold up, however, and in view of improving markets at other points, sellers are quite willing to await developments. Quotations are, nominally, $20.50 @ $21, at furnace, but for reasons already stated, very little actual business has been done of late.

Steel Rails.—There is more inquiry, more business, and somewhat better prices. A good many light Rails have been called for lately including 45's at about $32.50, 35's at $33, and still lighter sections at from $34 to $35. There is a good deal of inquiry yet, and manufacturers consider the outlook very favorable for the balance of the year. In many cases they have nearly three months orders on hand, which with business in sight, give promise of full activity for a long time to come. Mill prices, $31 50 @ $32 for Standard Sections.

Steel Billets.—During the past few days some irregularity has been developed, and for prompt specifications decided cuts in prices have been made. Some quote $33 @ $33.50, delivered, but in other cases sales have been made at from $31.50 to $32; the market at this writing being very unsettled. The decline is due to sharp competition on special orders, rather than to any inherent weakness in the position.

Muck Bars.—The market is firm at last week's prices, but no further advance can be recorded. Consumers bought at low prices for their immediate wants, and are not in the market to any extent at prices now quoted, say $28.25 @ $28.50, delivered.

Bar Iron.—The market is steady, with a fairly active demand at unchanged prices. A considerable amount of material has been taken by car builders and other large consumers, and mills are nicely situated as regards orders for the next two or three weeks. For the present, therefore, a waiting market is expected, with prices at from 1.75 @ 1.77½¢, delivered for car specifications, and 1.80¢ @ 1.85¢ for other first-class Iron.

Skelp Iron.—Prices are very low, and orders recently taken were at from 1.72½¢ to 1.75¢, delivered, for grooved, and 1.90¢ @ 2.0¢ for Sheared. Mills are tolerably well supplied with orders, but there is no disposition to place more, unless at the lowest figures named, and in some instances bids are not even as high as 1.70¢. Sellers, however, quote 1.75¢, delivered for Grooved, and 1.90¢ @ 2¢ for Sheared.

Plates.—A fair amount of business has been done during the week, nothing heavy, but a good run of miscellaneous orders. Mills are holding their own, but they have not secured very much ahead, although prospects in that respect are somewhat encouring. Prices steady and unchanged as follows, for lots delivered in consumers' yards:

	Iron.	Steel.
Ship Plates	2.10 @ 2.15¢	2.25 @ 2.35¢
Tank	2.10 @ 2.15¢	2.30 @ 2.40¢
Bridge Plate	2.10 @ 2.15¢	2.30 @ 2.40¢
Shell	2.40 @ 2.50¢	2.50 @ 2.60¢
Flange	3.00 @ 3.15¢	2.80 @ 3.00¢
Fire-Box	3.75¢	3.75 @ 4.25¢

Structural Material.—A good average run of business is reported in this department, but nothing calling for special remark. Mills are busy and quotations are generally maintained, but once in a while cuts are made on Angles; but a good deal depends on the character of the order. Ordinarily, however, prices delivered in consumers' yards are about as follows: 2.20¢ @ 2.25¢, delivered, for Sheared Plates; 2.15¢ @ 2.20¢ for Angles, with 10¢ @ 15¢ more for the same in Steel. Tees, 2.5¢ @ 2.6¢; Beams and Channels, 3.1¢ for either Iron or Steel.

Sheet Iron.—The demand is large for the season, and mills are nearly all running to their full capacity. Prices are a a trifle easier on Iron Sheets, and on very desirable orders slight concessions can be had; but the usual asking prices are as follows for carload lots:

Best Refined, Nos. 14 to 20	3.00¢ @ 3.10¢
Best Refined, Nos. 21 to 24	3.20¢ @ 3.30¢
Best Refined, Nos. 25 to 26	3.40¢ @ 3.50¢
Best Refined, No. 27	3.50¢ @ 3.60¢
Best Refined, No. 28	3.60¢ @ 3.70¢
Common, ⅕¢ less than the above.	
Best Soft Steel, Nos. 14 to 20	3⅕¢ @ 3⅖¢
Best Soft Steel, Nos. 21 to 24	3⅖¢ @ 3⅗¢
Best Soft Steel, Nos. 25 to 26	3⅗¢ @ 3⅘¢
Best Soft Steel, No. 27	4¢ @ 4⅕¢

Best Bloom Sheets, 1-10¢ extra over the above prices.

Best Bloom, Galvanized, discount	60 %
Common, discount	62½ %

Old Rails.—No Rails for sale in this market. There are buyers at from $24.50 to $26, delivered at mills in the interior, price according to location of mill. Probably $24 would be paid for lots at seaboard, but in the absence of actual business prices are entirely nominal.

Scrap Iron.—There is no change in this department. There is a good demand, and with light offerings prices are maintained at about the following figures: No. 1 Wrought, $21.50 @ $22 Philadelphia, or for deliveries at mills in the interior, $22 @ $23; $16 @ $17 for best Machinery Scrap, $15 @ $15.50 for ordinary, $16 @ $17 for Wrought Turnings, $11 @ $11.50 for Cast Borings, and $25 @ $27 for Old Fish Plates, and $17 @ $18 for Old Car Wheels.

Wrought Iron Pipe.—The current demand is excellent, and the outlook is considered very encouraging. Some scarcity is reported in the smaller sizes. Discounts unchanged, viz.: Butt-Welded Black, 47½ %; Butt-Welded Galvanized, 40½%; Lap-Welded Galvanized, 47½ %; Lap-Welded Black, 60 %; Boiler Tubes, 1¼ inches and smaller, 45 %; Boiler Tubes, 2 to 4 inches, 50 %; Boiler Tubes, 4½ inches and larger, 52½ %; Oil Well Casing, 50 %.

Cincinnati.

Office of *The Iron Age*, Fourth and Main Sts. } CINCINNATI, June 11, 1890. }

(*By Telegraph.*)

Pig Iron.—The past week has been a satisfactory one for furnace, and the business has been quite gratifying to agents. Sales have aggregated between 30,000 and 35,000 tons, mainly for delivery, but contracts embracing October, November and December have also been made. The advance of 50¢ ℔ ton reported a week ago has been maintained, but an attempt to secure a further advance of 50¢ ℔ ton at Cincinnati sales, for delivery through the year, has been less successful. The aggregate of 30,000 tons was made up almost entirely of small sales, the largest individual transaction being 2500 tons. In this respect the character of the business differs from that of the preceding week when single sales of 10,000 tons contributed to swell the volume of trade. In fact to swell the value of lead. In fact the preceding week was the most active in the history of the Iron interest in Cincinnati. The week under review is more important, from the fact that trade has been of a more representative character during the present week. A few large concerns having a powerful influence in proportion to their consuming capacity bought the majority of the Iron sold, and to some extent dictated to producers. During the week under review furnaces, being in stronger condition, have compelled buyers to accept more favorable terms to the producers, and among the buyers have been car shops, engine works, rolling mills, country foundries and agricultural works, smaller consumers, but better representatives of the Iron interest than the large works. While the bulk of sales have continued to be of Southern Coke Iron, a larger proportion of the sales have been of Charcoal Iron. Northern furnaces, too, have shared to a greater degree in the business transacted. Larger sales of Car Wheel Iron also have been made, both of Southern and Lake production. In fact, the improvement heralded by Southern Coke Iron has been communicated to all other kinds, although not yet made evident through advanced prices. Competion is still active and keen and a further advance is strongly opposed by all interested, at least for the

present. Among the more important sales of the week may be mentioned 2400 tons Lake Superior Car Wheel on the basis of $21.50, cash, Cincinnati; 2500 tons Southern Car Wheel on basis of $22.75, cash, Cincinnati; 2000 and 1000 tons No. 3 Southern Foundry on the basis of $11.50, cash, at furnace; 1000 and 1000 and 2800 tons No. 2 Soft on same basis, and 4000 tons Gray Forge on basis of $11, cash, at furnace. In addition to these sales about 1400 tons sold in lots ranging from 50 to 700 tons on the basis of quotations. We quote as follows:

Foundry.	
Southern Coke, No. 1	$15.25 @ $15.75
Southern Coke, No. 2	14.75 @ 15.00
Southern Coke, No. 3	14.25 @ 14.50
Ohio Soft Stone Coal, No. 1	17.00 @ 17.50
Ohio Soft Stone Coal, No. 2	16.00 @ 16.50
Mahoning and Shenango Valley	17.00 @ 17.50
Hanging Rock Charcoal, No. 1	21.00 @ 22.00
Hanging Rock Charcoal, No. 2	19.50 @ 20.50
Tennessee and Alabama Charcoal, No. 1	17.50 @ 18.50
Tennessee and Alabama Charcoal, No. 2	18.00 @ 18.50
Forge.	
Gray Forge	13.75 @ 14.00
Mottled Neutral Coke	13.25 @ 13.50
Car Wheel and Malleable Irons.	
Southern Car Wheel	22.50 @ 23.25
Hanging Rock, Cold Blast	22.00 @ 22.50
Lake Superior Car Wheel and Malleable	21.50 @ 22.00

Rogers, Brown & Co. have been appointed sole agents for the Hinkle Furnace, located at Ashland, Wis.

St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st., ST. LOUIS, June 9, 1890.

Pig Iron.—There has been considerable inquiry for Iron during the past week, the advance in prices, which amounts to a full 50¢ ℔ ton, being the principal reason. Consumers are endeavoring to close at the figures ruling one week ago, but the furnaces are very unwilling to shade prices even on the most desirable orders. The improvement has the appearance of genuineness, and as furnaces are pretty well tired of the low prices which have been ruling since the first of the year, the prospect for continued improvement is decidedly favorable. A 500-ton lot of No. 2 Southern Soft Iron was closed a few days since at $14, cash, delivered in buyer's yard here. No. 1 Southern Foundry is quoted at from $15.75 to $16 for cash, f.o.b. St. Louis. The outlook is quite satisfactory, and unless all signs fail, the present range of values will be maintained, and as the demand increases higher prices will be in order.

For the present we quote as follows, for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	$15.75 @ $16.25
Southern Coke, No. 2 Foundry,	14.75 @ 15.25
Southern Coke, No. 3 Foundry,	14.25 @ 14.75
Gray Forge	14.00 @ 14.25
Southern Charcoal, No. 1 Foundry	18.00 @ 18.50
Southern Charcoal, No. 2 Foundry	17.50 @ 18.00
Missouri Charcoal, No. 1 Foundry	18.00 @ 18.50
Missouri Charcoal, No. 2 Foundry	17.25 @ 17.75
Ohio Softeners	18.50 @ 19.50

Connellsville Coke, f.o.b. East St. Louis, $5.65; St. Louis, $5.80.

Bar Iron.—The demand for manufactured Iron shows a healthy increase, and prices are well maintained as follows: Lots from mill command from 1.80¢ to 1.85¢. Small lots from store are quoted at 2¢.

Barb Wire.—For some reason this department has failed to respond to the improvement shown in the other branches of the Iron and kindred trades. Price of raw material has been advanced, but notwithstanding this fact Barb Wire is heavy and consumers are able to place their orders to-day at prices which cannot net the mills much profit. Some little effort has been made to steady the market, but local mills are compelled to meet the prices made by outside manufacturers. The following quotations show the basis on which sales are made: Painted, 2.80¢ @ 2.85¢, Galvanized, 3.40¢ @ 3.45¢. Carload lots 10¢ ℔ cwt. less than above prices.

(*Later by Telegraph, See Page* 1011.)

Louisville.

LOUISVILLE, KY., June 9, 1890.

Pig Iron.—The market continues quite active, and several large transactions have been closed during the past week. The advance of 50¢ ℔ ton is held firm and furnaces are not willing to accept orders for long deliveries, the majority preferring to sell for June and July only, having already sold as much for later deliveries as they care to for the present, though some will sell a portion of their output for delivery running through four or five months at an additional advance of 50¢. The demand continues large and inquiries are general. We quote:

Southern Coke, No. 1 Foundry	$15.00 @ $15.50
Southern Coke, No. 2 Foundry	14.50 @ 15.00
Southern Coke, No. 3 Foundry	14.00 @ 14.50
Southern Coke, Gray Forge	13.50 @ 14.00
Southern Coke, Silver Gray	13.50 @ 14.50
Southern Charcoal, No. 1 Foundry	17.50 @ 18.50
Southern Car Wheel, Standard brands	22.50 @ 23.00

Birmingham.

BIRMINGHAM, ALA., June 9, 1890.

Pig Iron.—A good batch of orders from Western commission men, and a few from consumers direct, came in this week and the Iron market has been active. Offers of 50¢ under the ruling price for large lots, to be delivered in July, have been made and promptly refused. All grades of Iron are being held firm at the same figures asked a month ago. Sixty per cent. of the output for June has already been sold for delivery during the month and all fear of midsummer dullness seems to have disappeared. Furnacemen still decline to deal in futures, and no sales or quotations are being made for delivery beyond July 15. There has been no addition to stocks on hand to amount to anything since May 1, and there is now very little unsold Iron in this district. The four rolling mills in the district are now running full time as well as all the foundries and car works, and local consumption of Pig Iron is at the maximum which, of course, helps trade a little.

Cleveland.

CLEVELAND, June 9, 1890.

Iron Ore.—The demand for Bessemer Ore has been again renewed and there have been a few sales at full quotations The market is fairly active and seems to be gaining strength daily. Shipments are 300,000 tons in advance of the record at a corresponding period last year. It is claimed, however, that the extra 300,000 tons came from the Gogebic Range, and that the totals from the other ranges are not above those of last year. It is also claimed that several mine owners find themselves unable to produce ore to the limit of shipping facilities, and the argument is advanced that the whole output for 1890 may not after all be so very much greater than in 1889. The new demand now being made, however, will warrant the mine owners in adding to the facilities for getting out their product in every possible way. There is a steady market for non-Bessemer at about $4.50, and it would not be surprising if the 600,000 tons still unsold should be disposed of during June and July. The railroad companies find themselves entirely unable to carry the ore to the furnace as fast as it is received by vessels, and the docks are heaped mountain high. Transportation rates are unchanged.

Pig Iron.—The market continues to improve in every way. Prices are firmer and sales have been more numerous during the past six or seven days than for any week since the beginning of the year. Furnacemen refuse flatly to make any concessions whatever. The demands from the consumers are increasing daily, but furnacemen seem disinclined to sell any considerable quantities of iron except for immediate delivery. Both buyers and sellers seem united against encouraging an unwarranted inflation of prices, but that there will be considerable of an improvement over present quotations every one admits. The demand for Bessemers, Forge Irons and Lake Superior Charcoals is particularly good.

Scrap.—There have been several sales at $23.50 @ $24, the former figure generally prevailing. Old Wheels are worth about $19 and No. 1 Railroad Wrought about $19.25.

Nails.—The market has recovered itself and prices have advanced 10¢ per keg all around. Steel Cut Nails are now quoted at $2; Steel Wire Nails at $2.50, and Steel Cut Spikes at $2.25.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, June 9, 1890.

Pig Iron.—There is nothing particularly new to relate beyond an advancing tendency of the market. It is almost certain that with most of the furnaces there is an advance of 25¢ @ 50¢, and such is the feeling among them that quite a number of them have withdrawn all unaccepted quotations. So far as can be learned producers feel very well satisfied that Iron is going up, although a few of the stacks are still offering to sell at old prices. There has been a great deal of Iron sold for delivery during the next 90 days on a basis of $12 @ $12.50 for No. 1. The question of banking for one or two weeks has not yet materialized, but it would not surprise a few if this arrangement were suddenly made. Some producers are using the argument that with the over-production prices cannot advance, but like everything else the only thing that can settle this problem is time. We make no change in quotations, although they are the inside market.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, June 10, 1890.

Pig Iron.—There has been a fairly active market during the past week and a firm feeling obtains, yet actual business shows but little change in prices as compared with those of a week ago. A Valley furnace sold 6000 tons Bessemer to a speculator—1000 tons a month from July to January—at $18.50, cash, on cars at furnace, which would be equal to $19.40 at Pittsburgh, but it may be sold to go elsewhere. Very few, if any, of the Valley furnaces are willing to sell delivered in Pittsburgh at $15.50 for Forge and $19 for Bessemer, but so far as we can learn no sales have been made by our city furnaces at higher prices than we have quoted. However, the indications are that Bessemer will go still higher, as there is considerable inquiry, and at the increased cost of ore there is not much margin for profit at $19, or even $19.50. The demand for Forge Iron is fair, but not to say urgent, and the advance has not been as rapid as some of the more sanguine had counted upon. The output in the Valleys will, it is expected, be considerably reduced within the next few weeks, as a number of the furnaces there will blow out for repairs. With the exception of a few lots of Southern, very little Iron is being offered here from other points, and

the inference is that furnacemen at a distance can do better at home than in this market. Quotations may be fairly given as follows:

Gray Forge Neutral	$15.25 @	$15.50.	cash
All Ore Mill	16.00 @	16.50.	"
White and Mottled	14.00 @	14.50.	"
No. 1 Foundry	17.50 @	18.00.	"
No. 2 Foundry	16.25 @	16.75.	"
No. 2 Charcoal Foundry	21.50 @	22.00.	"
Bessemer	19.00 @	19.50.	"

Muck Bar.—There is more inquiry and the market is firmer, with sales at $28.50 @ $29, cash, according to quality and delivery. Some sales have been reported above prices quoted, but up to the present time we are satisfied that very few sales have been made above $29, which is an advance of about $2.50 ℔ ton as compared with the lowest point.

Manganese.—Sales of 80 % domestic at $80, Pittsburgh, and 80 % foreign at $75 @ $76, at seaboard.

Manufactured Iron.—There is an increasing business, and prices are firmer, in sympathy with the raw material; indications are that there will be a good healthy trade during the last half of the year. It is rumored here that a good many of the Eastern mill workers have gone into the Amalgamated Association and that an effort will be made to advance the wage scale eastward. In this district puddlers get about $2 ℔ ton more for puddling than is paid for the same kind of work at Philadelphia and other points East, and it is said that the Amalgamated Association, as an act of justice to mill owners West, will make an effort to have the wage scale advanced eastward to correspond with that of the West. Bars are quoted at 1.80¢ @ 1.85¢; Plates, 2.15¢ @ 2.25¢; No. 24 Sheet, 2.85¢ @ 2.90¢; Skelp Iron, 1.75¢ @ 1.80¢ for Grooved, and 2 @ 2.10¢ for Sheared; all 60 days, 2 % off for cash.

Cut and Wire Nails.—The market for Cut Nails continues somewhat excited, as is usual when prices are tending upward. Our latest advices from Wheeling report that large orders have been refused there within the past week. Steel Nails are quoted at $1.85 @ $1.90, and Iron Nails 10¢ @ 15¢ ℔ keg less. As stated in our report of a week ago, Iron Nails are again coming to the front, which we presume may be attributed mainly to the fact that they are considerably cheaper, and a good many consumers would just as soon have them as the Steel Nail. As it now stands the Iron Nail can be sold considerably below Steel, owing to the recent sharp advance in the price of Steel Slabs, which within a few weeks have gone up from $3 to $3.50 ℔ ton. Wire Nails are also more active and higher. We now quote at $2.35 in car lots, 60 days, 2 % off for cash.

Structural Iron.—There is an increasing demand, and prices are firmer but unchanged, notwithstanding the increased cost of raw material. Angles, 2.25¢; Channels and Beams, 3.10¢; Sheared Steel Bridge Plates, 2.75¢; Universal Mill Plates, 2.40¢; Refined Bars, 1.90¢ @ 2¢.

Steel Plates.—There is nothing new to report. Business continues fair, while prices remain unchanged. Fire Box, 4½¢ @ 4¾¢; Shell, 3¢; Flange, 3.15¢ @ 3.20¢; Tank, 2.75¢.

Merchant Steel.—There is a fair demand, but no change in prices, although all kinds of finished is much firmer, owing to enhanced cost of raw material. Tool Steel, as to quality and brand, 8¢ and upward; Crucible Spring Steel, 4¢; Open Hearth Steel, base sizes, 2½¢; Bessemer Machinery, 2.35¢; Tire Steel, 2.50¢ @ 2.60¢.

Wire Rods.—An increased demand is reported, and prices continue to tend upward; domestic are now quoted at $42 @ $43 ℔ ton.

Billets and Slabs.—There is continued inquiry for Billets, but so far as we can learn there have been no sales made above our outside quotations of last week, $31; indeed, a leading manufacturing firm reports having failed to get a contract at $30.50, and it is evident it was taken for less. We continue to quote at $30 @ $31, although we have heard price quoted up to $32, and that price may be realized before the close of the present week, but up to the present writing there have been no sales that are above $31, and not many at that. Advices from Wheeling quote Nail Slabs at $30.50 and $31 there.

Wrought Iron Pipe.—Mills are reported fully employed, and likely to be during the remainder of the year. No change in prices. Discounts on Black Butt Weld Pipe, 47½%; on Galvanized do., 40%; on Black Lap Weld, 60%; on Galvanized do., 47½%; Boiler Tubes—1¼-inch and smaller, 45 %; 2 to 4-inch, 50 %; 4-inch and larger, 52½ %; Casing, all sizes, 50 % off.

Old Rails.—There is considerable inquiry for Old Iron Rails, with but few offerings. No sales reported during the past week, in the absence of which we quote at $25.50 @ $26.50, as to quality, delivery, &c. Valley mills are still on the market for Rails, and it looks as if imported Rails would soon find their way to the interior, as the supply of Domestic appears to be almost exhausted. There is also considerable inquiry for Old Steel Rails, and they, too, are very scarce.

Railway Track Supplies.—There is no apparent improvement in the demand, and while prices are firmer they remain unchanged. Spikes, 2.05¢, 30 days, on cars here, and 2.15¢ at Chicago and St. Louis. Iron Splice Bars, 1.85¢ @ 2¢. Iron Track Bolts, 2.85¢, with Square, and 3¢ with Hexagon Nuts.

Steel Rails.—There does not appear to have been much inquiry the past week, but the market is firmer, in sympathy with the enhanced cost of raw material. Bessemer Pig is up $2 ℔ ton, as compared with lowest point, but thus far very few Rails have been sold here at any advance. We now quote $32 @ $33; small lots for immediate delivery, 50¢ ⅏ $1 more.

Old Material.—There is an increased demand, and prices are firmer. No. 1 Wrought Scrap, $20 @ $20.50, net ton; Old Car Axles, $28 @ $29; Cast Scrap, $15 @ $15.50, gross; Cast Iron Borings, $12 @ $12.50, gross; Old Car Wheels, $19; Steel Bloom Ends, $21 @ $21.50.

Connellsville Coke.—There has been a decided improvement in the demand for Connellsville Coke during the past ten days, the shipments for the week ending May 31 being largely in excess of that for the first week of that month. This has been caused chiefly by the blowing in of a number of furnaces that have been making repairs, and also because a number of concerns that have been trying Coke from other fields have returned to the use of Connellsville Coke. The following are present prices f.o.b., cars at ovens: Blast Furnace Coke, $2.15; Foundry Coke, $2.45; Crushed Coke, $2.65 ℔ ton of 2000 lb. Prices of Connellsville Coke:

	Foundry Coke.	Crushed Coke.
On Cars at Boston and points taking Boston freight rates.	$6.45	$6.65
On cars at Baltimore	4.62	4.82
On cars at Buffalo	4.70	4.90
On cars at Cleveland	4.15	4.35
On cars at Cincinnati	5.10	5.30
On cars at Toledo	4.80	5.00
On cars at Detroit	4.80	5.00
On cars at East St. Louis	5.65	5.85
On cars at St. Louis	5.80	6.00
On cars at Chicago	5.20	5.40
On cars at Milwaukee	5.30	5.50

(By Telegraph.)

There is no change in the general position of the Pig Iron market. Demand is fair, but buyers are not disposed to pay outside prices. Valley furnaces generally are asking more than can be obtained. Pittsbugh Muck Bar is firmer at $29, with some few sales at $29.50, for future delivery. Considerable inquiry for Billets, but prices are no higher, $30 to $31. Sales 1000 tons Old Iron Rails at $26.25@$26.50. Old Steel Rails in demand, with but few offering. Mill owners report that as yet there have been no improvement in finished products to correspond with the increased cost of raw material, bu. this will come in due time. Reports from West and South in regard to business generally of a favorable character.

Detroit.

WILLIAM F. JARVIS & Co., under date of June 9, 1890, say: The most noticeable feature in the Pig Iron market for the past week was the activity of Lake Superior Charcoal Iron. Very large transactions were closed, and these have been followed by still larger inquiries, and there can be very little doubt but that a large hole in the visible supply of Lake Superior will be noted by the next monthly report of stocks on hand. Prices have remained about normal, no concessions have been granted that we have heard of, and while the market may be said to be firm, no advances can be noted. Southern Iron is 50¢ higher on nearly every grade. Buying is free for small quantities, the larger buyers having covered some time since. The same condition of affairs exists respecting Northern made grades. We quote the market today as follows:

Lake Superior Charcoal, all numbers	$20.75 @	$21.25
Lake Superior Coke, Bessemer	19 00 @	20.00
Katahdin (Maine Charcoal)	24.00 @	25.00
Lake Superior Coke Foundry, all ore	19.25 @	19.75
Southern No. 1	16.75 @	17.25
Southern Gray Forge	15.00 @	15.25
Jackson County (Ohio) Silvery	18.50 @	19.00

Financial.

Viewed from the Wall street standpoint there is a distinctly better tone in the general business outlook, and to a certain extent all departments of business activity feel the impulse arising from the promised era of inflation. The "bull card," so to speak, is the passage of a silver bill by the House, together with a probability that the Senate will act in accord and secure a vote before the end of the week. The immediate effect was to advance the price of silver in London to 49d. per ounce, the highest since 1885, when silver was quoted 50d. per ounce. Another consequence is the prospect of easy money for an indefinite period, a part of the silver scheme being the release of the fund held for the redemption of national bank notes, which will put afloat about $58,000,000; also a bill allowing banks to issue currency to par on the bonds deposited by them, instead of only 90 per cent. Furthermore, the Treasury, after July 1, will distribute freely, averting all danger of stringency at least until the fall demand begins. It is surmised that advantage will be taken of circumstances to retire $110,000,000 4½s, maturing within about a year. Railroad earnings and bank clearings alike indicate unwonted activity. The bank exchanges in fifty-five cities last week showed an increase over last year of 27.2 ℔ ¢. New York increased 28.7 ℔ ¢, Boston 34.4, Chicago 34.2. For May the gain was 19.5 ℔ ¢, the aggregate being the largest on record. Crop reports are favorable.

Early sown wheat has well advanced. The first new wheat of the season was received in San Francisco. June 14 the Soo line all rail freight tariff from Boston via Canadian Pacific Despatch will be advanced. The election of President Van Horne, of the Canadian Pacific, as a director in the Soo, indicates the identity of interests in this new route.

On the Stock Exchange, after a spurt caused by the discussion of silver in the House, the market became generally dull but firm. Mexican subsidy negotiations excited considerable interest, and several bankers bought silver bullion certificates at higher prices. Sugar Trust advanced on the assurance of higher prices for refined sugar. The Vanderbilt stocks, it was noted, were selling at the highest prices for years, but doubts as to the fate of the Tariff bill in the Senate and of the proposed amendments to the Interstate Commerce law, anent the long and short haul and pooling, operated to hold speculation in check. Application was made to permit dealings in "Starch Trust," and something was said about the American Tobacco Company's stock. Oregon Transcontinental was sustained on reports that Northern Pacific preferred stock would be retired. On Monday, London responded, though tardily, to the progress of the silver bill. Silver advanced 1d. ℔ ounce over there on buying for India, and 4½ % rupees rose to 82½. At the election of the Consolidated Stock and Petroleum Exchange Charles George Wilson was again made president. On Tuesday the announcement of the decision of the Supreme Court of California, restoring the American Sugar Refinery in San Francisco to the Havemeyers caused Sugar Trust to open at an advance. Traders, while apparently confident of speedy action by the Senate on the Silver bill, were disposed to wait. Chicago gas ruled fractionally lower on the prospect of a long continued dispute between the Fidelity Trust Company, of Philadelphia, and the receiver repecting the control of the securities. The strength of the coalers was attributed to a report that the price of coal is to be further advanced.

United States bonds are quoted as follows:

U. S. 4½s, 1891, registered	103
U. S. 4½s, 1891, coupon	103
U. S. 4s, 1907, registered	121
U. S. 4s, 1907, coupon	122
U. S. currency 6s, 1895	113

Bank returns for the week and movements of the currency generally were without significance. The surplus reserve stands at nearly $5,000,000. The loan market was moderately active and irregular. In time money the only change was in 60 to 90 days' bills, which were 5 %, and on mixed collaterals 5½ %. In bank stocks Western National advanced from 107 to 108, 110 shares changing hands. Thirty Manhattan brought 191, and 26 Tradesmen, 110½ @ 110. The Washington National Bank was organized at No. 1 Broadway, Evan J. Sherman, president. The offer of the Seligmans for the $40,000,000 Mexican Government loan is said to have been 72, the bonds to bear 4½ % interest. Sterling exchange was stronger, nominal rates having been advanced to 4.86 and 4.88 by a number of drawers. Merchandize movements in some departments indicate the approach of summer dullness. Breadstuffs are a little stronger, but dull. Coffee steady. Cotton had a downward turn on better prospects. The special feature was sugar, which is higher. Until a few days ago the difference between refined and raw was about ¼¢ ℔ lb; the prices of the former are raised $\frac{1}{16}$¢ @ ⅛¢, and of raw only ⅛¢. Provisions are depressed. Dry goods firm but quiet.

Wharton Barker has organized a new American and European Company with $25,000,000 capital, to engage in a general banking and financial business. Among the American directors are Wharton Barker, E. P. Wilbur, president of the Lehigh Valley Railroad; Thomas M. King, vice-president of the Baltimore and Ohio; George D. B. Keim, manager of the Philadelphia and Reading, and John H. Converse, of the Baldwin Locomotive Works. The chief offices of the company will be in Dondon and Philadelphia.

The New York Central and Hudson River Railroad Company have authorized the issue of $15,000,009 4 per cent. gold debenture bonds to provide for the expenses of the depression of the tracks in the annexed district and other extensive improvements, including the elevation of the Harlem River Bridge. In addition contracts have been made for large additions to the rolling stock and motive power of the company.

Exports of merchandise at this port for the week were $5,247,600; imports, $8,703,500.

Another great railroad consolidation is announced, arrangements having been completed by which the Baltimore and Ohio, the Richmond Terminal system and the Northern Pacific pass under one management, constituting a system of some 13,000 miles in extect, and making an unbroken communication from the Atlantic to the Pacific.

New York.

Office of *The Iron Age*, 66 and 68 Duane street, NEW YORK, June 11, 1890.

American Pig.—The market has displayed no features of special interest during the week under review. Consumers, however, are taking a little more interest in it, although they generally expect to buy at very close figures. The majority of Southern furnaces are holding out for more money. As yet the contracts for Charcoal Iron, alluded to in our last issue, have not been placed. We continue to quote No. 1 Foundry $18 @ 18.50, for standard Northern brands, No. 2 Foundry, $17 @ $17.50; Southern No. 1, $17 @ 17.25; Southern No. 1, Soft, $16.50 @ $16.75, and No. 2, $16 @ $16.50. There have been considerable speculative dealings in warrants on the Consolidated Exchange, with reports of 12,000 tons having been made in one day. How much of these are "wash" sales is unknown.

Scotch Iron.—Small lots are being taken occasionally, the quotations being: Eglinton, $19.25 @ $19.50; Dalmellington, $21.50, and Summerlee, $23.50.

Spiegeleisen and Ferromanganese.—There are no orders of any consequence in the market, either of Spiegeleisen, which we quote nominally $31 @ $32, or for Ferromanganese, which may be named $75 @ $78, for future delivery.

Billets.—It is reported that a block of 5000 tons has been placed with an Eastern mill at close to $31.50. The majority of Eastern mills show little disposition to quote, and when they do name figures, place them at the approximate parity of selling prices in the West. There is very little doing in Nail Slabs, the Nail mills being unable to make ends meet with Slabs at $31, delivered, while Steel Nails are still selling at $1.65 at Eastern mill. We quote Billets, $31.75 @ $32.

Wire Rods.—An active market is reported from the West, where transactions are taking place on the basis of $42 @ $42.50. In the East $44 @ $44.50 is quoted at sellers' mill, with a moderate volume of transactions.

Steel Rails.—A little better feeling prevails, and the tone of the market is better. Sales of about 10,000 tons have been made by Eastern mills, the largest single order being for a Southern road. There are a number of inquiries in the market which encourage the idea that the mills will be soon full of summer work, and that the pressure for orders for that delivery will be relieved. We quote $31 @ $31.50 at Eastern mill, but question whether, under special circumstances, for delivery which may happen to suit two or more mills a concession below the inside figure might not be made. The market has improved to this extent, then, that what was a short time ago a price readily made is now possible only under special conditions.

Structural Material. — Among the contracts now being bid for is one large building for the *Mail and Express*. The peculiar feature is the considerable amount of Z Bars which it includes. We quote: 2.15¢ @ 2.20¢ for Plates, 2.15¢ @ 2.25¢ for Angles, 2.5¢ @ 2.6¢ for Tees and 3.1¢ for Beams and Channels.

Fastenings.—The rise in Old Material is imparting a somewhat stronger tendency to the market, although low sales are still occasionally heard of. We quote Spikes $2.00 @ $2.10, Angle Bars 1.75¢ @ 1.80¢ and Bolts and Nuts 2.80¢ @ 3¢.

Axles.—We quote M. C. B. standard Steel, 2.50¢, New York delivery. Scrap Axles are 2.30¢, New York.

Merchant Steel.—We quote: Machinery, 2.10¢ @ 2.15¢, at mill; Toe Calk, 2.20¢ @ 2.25¢ rates; Tire Steel, 2.15¢ @ 2.20¢ rates, and Plow Steel, 2.25¢ @ 2.30¢ flat.

Old Rails.—While the demand is very active, the scarcity and the strong views of buyers have prevented any business from being done. We quote $24.50 @ $25.

Metal Market.

Copper.—The market has continued very firm, and prices are again a fraction higher on nearly all descriptions of the Metal. Lake Superior Ingot has been sold to the extent of 200,000 lb or more at 15¼¢ @ 15½¢, and is now quoted at 15¾¢, with transactions to the extent of 300,000 lb at the higher rate. Wire Bars are at 16¢, and in active demand, selling at that price for August and September delivery. Arizona is quoted at 14¢ @ 14½¢ upward, and common casting brands at 13½¢ @ 14¢. Of the latter moderate quantities, an outside brand, were sold at 13¾¢, but it is doubtful that purchases can be duplicated at that price. The consumption of all varieties of Copper continues heavy, but present high cost tends to cause more reserve in buyers' operations, and inquiries are chiefly for moderate quantities. The London market has continued active, and prices there show about £4 advance for the week.

Tin.—Straits Tin has been sold at an advance of about ¼¢ ℔ lb in this market and £3 in London, with heavy dealings again reported from the latter quarter, but merely fair transactions here, until Wednesday when 500 tons changed hands at 21¼¢, June and July delivery. At one time spots and futures were quoted at the same prices in London, but there is again a premium of 5/ @ 7/6 on futures. The reverse is still the case in this market, however, prompt and June delivery being about 0.20¢ over July and ¼¢ above August and September. The statistical position in general continues strong and the consumption quite heavy, but speculation has been chiefly responsible for the sharp rise in prices in the foreign market and consequent advance here. For 5-ton lots from store Wednesday's price was about 21.80¢, and smaller quantities were quoted at 21.90¢ @ 22¢. On the Exchange 10-ton lots spot were quoted at 21.60¢ bid, 21.85¢ asked; June delivery at 21.65¢ @ 21.75¢; July at 21.50¢ @ 21.65¢, and August at 21.35¢ @ 21.60¢.

Lead.—Operations in Pig Lead have been on a larger scale and values have responded quickly to the increased interest on the part of buyers, advancing to 4.40¢ here, or ten points above the best price current a week ago. The improvement was almost wholly in the demand from consumers, whose purchases during the week amount to fully 600 tons. Local speculative dealings have been confined to a few single carload lots.

Spelter.—The market for this metal continues fairly active and strong. Consumption by Brass manufacturers and galvanizers continues heavy, the leading producers keep well sold up on their output and the cost of Ores is still high. Prime Western has been sold at 5.60¢ for shipment two weeks hence and 5.65¢ for July shipment. There are now buyers at 5½¢ for all deliveries up to and including September, and at 5.55¢ for moderate quantities.

Antimony.—The market is firm but quiet, with 19½¢ @ 20¢ quoted for Hallett's and 23¢ for Cookson's.

Tin Plate.—There has been no particular change in the market the past week. Spot transactions are still of fair total amount, but the movement in futures is rather slow, and large buyers appear reluctant to take hold at the prices asked. As compared with those of a week ago, current figures show very little change, and the tone of the market is fairly firm. Quotations for large lines, on the spot, are as follows: Coke Tins—Penlan grade, IC, 14 x 20, $4.40; J. B. grade, do., $4.47½; Siemens Steel, $4.65; Bessemer do., $4.42½. Stamping Plates — Bessemer Steel, Coke finish, IC basis, $4.70; IX basis, $5.70; Siemens Steel, IC basis, $4.80; IX basis, $5.80. IC Charcoals—Calland grade, ½ X, $5.50; Melyn grade, $5.75; for each additional X add $1.50; Allaway grade, $4.90 @ $5; Grange grade, $5.10 @ $5.15; for each additional X add $1. Charcoal Ternes—Worcester, 14 x 20, $4.90; 20 x 28, $9.50; M. F., 14 x 20, $6.90; do., 20 x 28, $13.80; Dean, 14 x 20, $4.55; do., 20 x 28, $9.00; D. R. D. grade, 14 x 20, $4.45; do., 20 x 28, $8.90 @ $9; Mansel, 14 x 20, $4.50; do., 20 x 28, $9; Alyn, 14 x 20, $4.55; do., 20 x 28, $9; Dyffryn, 14 x 20, $4.65; do., 20 x 28, $9.20; Wasters—S. T. P. grade, 14 x 20, $4.20; do., 20 x 28, $8.65; Abercarne grade, 14 x 20, $4.20; do., 20 x 28, $8.60.

New York Metal Exchange.

The following sales are reported:

THURSDAY, June 5.

30 tons Tin, June.....21.20¢
10 tons Tin, July.....21.10¢

FRIDAY, June 6.

20 tons Tin, spot.....21.40¢
10 tons Tin, July.....21.25¢

MONDAY, June 9.

10 tons Tin, July.....21.50¢
10 tons Tin, July.....21.55¢
10 tons Tin, October.....21.35¢
10 tons Tin, July.....21.65¢
100 tons Iron, June.....16.25¢

TUESDAY, June 10.

10 tons Lead, spot.....4.32½¢
25,000 lb Lake Copper, spot.....15.75¢
10 tons Tin, July.....21.65¢
10 tons Tin, July.....21.50¢
10 tons Tin, December.....21.80¢
10 tons Tin, per SS. Denmark.....21.55¢
10 tons Tin, per SS. Denmark.....21.50¢
10 tons Tin, September.....21.35¢

Coal Market.

The Anthracite Coal trade is dull, but is spoken of as being in much better shape than some time ago, with good prospects for an active trade in the fall. Coal is moving off in considerable quantities under previous orders, but it is not claimed that more than approach to the latest advance in prices has yet been made. The advance is believed to have been substantially on paper, but there is talk of still another advance before long, in hopes of bracing up the market. The weak spot is the freedom with which Coal is mined, notwithstanding all endeavors to restrict, the recent opening of collieries having added materially to the productive capacity. The official report for the week ended June 1 is as follows:

Regions.	1890. Tons.	1889. Tons.	Difference. Tons.
Wyoming.....	356,477	358,660	2,183
Lehigh.....	98,124	119,869	21,745
Schuylkill.....	197,710	185,016	12,694
Total.....	652,311	663,545	11,234
Total for year.	11,888,421	12,240,682	352,261

Quotations remain unchanged—viz., Broken, $3.50; Egg and Chestnut, $3.65; Stove, $3.90, f.o.b. gross. The output of Reading is 236,000 tons ahead of last year, and the Pennsylvania Railroad shipments are 642,000 tons ahead. Freights from New Bork to Boston are quoted 75¢ @ 90¢ and discharge. Bituminous Coal is active. The New York Central and Hudson River Railroad's annual contract, aggregating 1,300,000 tons, has been allotted. The contractors were Fall Brook Coal Company, 500,000 tons; Berwynd White Mining Company, 300,000 tons; New York and Cleveland Gas Company, 150,000 tons, and Buffalo firms, 350,000 tons.

Respecting the probability of American exports of Coal, the London *Colliery Guardian* says: "Hitherto the Americans have not worked their Coal fields so vigorously as their farm lands, but there is no reason why, as the American population becomes more dense, American Coal mining should not be commenced in earnest. American Coal mining is now advancing with rapid strides, and the time may certainly arrive when the exportation of American Coal to Europe will be commenced in downright, sober earnest."

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, June 11, 1890.

Pig Iron—Speculation was dull until Monday last, when Scotch advanced to 44/6 and Cleveland to 41/2 under the influence of more extensive trading for account of large operators and outsiders. Hematites have declined 3/ during the week, selling down to 50/6. No reason is assigned for the depression apart from a growing conviction that the difference between Scotch and Hematites has been too great. It is stated that there have been heavy purchases of one against corresponding sales of the other on this theory. The exports of all descriptions of Pig Iron to the United States last month were 11,000 tons against 7000 tons in May, 1889. Business in warrants was done to-day at 44/1 for Scotch, 41/ for Cleveland, and 50/6 for Hematites.

Cheap offers of Pig Tin from the Straits caused a temporary decline in prices of the metal during the early portion of the week under review, but active speculative demand, together with good trade purchases, brought about a radical change, and prices advanced sharply. The fact that more distant than cash Tin has been offering has cut down the premiums on forwards. Business has been done at as high as £97 for prompt.

In the speculative branch of the Copper market there was a great rush to buy Bars after the reaction from £54, and under that demand prices rapidly advanced to £58. 12/6, over 3000 tons changing hands. There is great confidence in the future of the metal among the large operators, and it is predicted that there will be a rise to £60 shortly. French holders find no difficulty getting rid of any quantity. To what extent they have availed themselves of the favorable circumstances does not appear to be known.

A fair amount of orders for Tin Plates are being placed with the makers at their figures, but the Liverpool market is unsettled, owing to the uncertainty as to the American trade. Exports last month to the United States were 26,000 tons, against 32,000 tons in May, 1889. At a meeting of the rate payers of the Llanelly Works it was decided to postpone the extension agreed upon last November until the fate of the Tariff bill is known. A large number of Plate makers attended the meeting.

Scotch Pig Iron.—The demand for makers' brands has improved and the market is steadier at the revised quotations:

No. 1 Coltness,	f.o.b.	Glasgow	63/6
No. 1 Summerlee,	"	"	61/
No. 1 Gartsherrie,	"	"	61/
No. 1 Langloan,	"	"	63/6
No. 1 Carnbroe,	"	"	46/
No. 1 Shotts,	"	at Leith	63/6
No. 1 Glengarnock,	"	Ardrossan	62/
No. 1 Dalmellington,	"	"	51/
No. 1 Eglinton,	"	"	46/6

Steamer freights, Glasgow to New York, 2/, nominal: Liverpool to New York, 10/

Cleveland Pig.—There is more doing in this line and makers' prices are firmer in sympathy with warrants. Makers quote 41/6 for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—In the absence of improvement in the Steel trade the demand continues slow and makers' prices are again lower. West Coast brands, Nos. 1, 2 and 3, 51/, f.o.b. shipping port.

Spiegeleisen.—The demand has fallen off and prices are rather more in buyers' favor. English 20 % quoted at 95/, f.o.b. shipping port.

Steel Rails.—Competition is keen and makers are offering at lower prices. Heavy sections quoted at £4. 10/ and light sections £5 @ £5. 5/15, f.o.b. at N. W. England shipping point.

Steel Blooms.—There is very little doing in these and prices are wholly nominal. We quote £4. 17/6 for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—The demand is with improvement and makers name previous prices. Bessemer 2¼ x 2¼ inch, £5, f.o.b. at N. W. England shipping point.

Steel Slabs.—A very slow market and prices rather weak. Bessemer quoted at £5, f.o.b. at N. W. England shipping point.

Old Rails.—There is no improvement in the demand or change in prices. Tees quoted at £3 @ £3. 2/6, and Double Heads £3. 5/ @ £3. 7/6, f.o.b.

Scrap Iron.—Business is on a small scale and the demand light. Heavy Wrought quoted £2. 15/ @ £2. 17/6, f.o.b.

Crop Ends.—The demand is without improvement. Bessemer quoted £2. 17/6 @ £3, f.o.b.

Tin Plate.—Transactions not as free and very little change in prices. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade	15/9 @ ...
IC Bessemer Steel, Coke finish	14/ @ ....
IC Siemens " " "	14/3 @ ....
IC Coke, B. V. grade	13/9 @ ....
Charcoal Terne, Dean grade	14/ @ ...

Manufactured Iron.—The market is unsettled, and prices are irregular. We quote, f.o.b. Liverpool:

	£ s. d.	£ s. d.
Staff. Marked Bars	@	9 10 0
" Common "	@	7 10 0
Staff. Bl'k Sheet, singles	@	8 5 0
Welsh Bars (f.o.b. Wales)	@	6 2 6

Tin.—There is still a fairly active and strong market. Straits quoted at £97, spot, and £97. 7/6 for three months' futures.

Copper.—Demand continues active, and the market strong at the advanced prices. Chili Bars quoted at £58, spot, and £58. 10/, three months' futures; Best selected, £64.

Lead.—More doing in this metal and the market stronger. Quoted at £13. 2/6 for Soft Spanish.

Spelter.—No material change in prices or in the demand. Quoted at £22. 12/6 @ £22. 15/ for Ordinary Silesian.

St Louis.

(*By Telegraph.*)

The Pig Iron market maintains the firm tone noted in our last report. The advance of 50¢ ℔ ton is strictly adhered to, and furnaces refuse to back orders for delivery later than September 1, believing that present indications point to higher prices after that time. Inquiries are received that point to increased activity in the demand for certain grades of Iron. Barb Wire shows decided improvement. Within the past few days several large orders have been placed with the local mills on the basis of 2.85¢, f.o.b. cars, St. Louis. The advance is traceable to the increased cost of raw material, and mills confidently expect a further advance to 3¢.

The Maris Machine Company, of Philadelphia, are manufacturing some special light weight swinging and traveling cranes, which appear to be meeting with considerable success. One pattern is a combination swinging crane with their Teal portable hoist. A special feature claimed for another pattern is that in delivering the load it can, if necessary, be carried out 6 inches beyond the extreme end of the jib.

It is reported that a representative of the Ruhrort Works, Germany, Herr Max Meyer, has gone to Pittsburgh to conduct experiments for the Carnegies with the Déby process of recarbonizing steel by the carbon filtering process.

It is rumored that one of the large steel rail works of Eastern Pennsylvania is to go into the manufacture of plates.

Edward Balbach & Son, of Newark, N. J., have two furnaces for the reduction of Mexican ore, and were preparing to erect smelting works in expectation of refining ores on a large scale.

HARDWARE.

The Condition of Trade.

Notwithstanding the advance of the season, there is probably an increase in the volume of business, which is accounted for in good part by the improved tone of the market and the firmness in several leading lines. There is also the return of a more confident feeling than prevailed during the recent break in the prices of raw material and some staple goods. The condition of both the iron and metal markets is making its effect felt on prices, and while there have been comparatively few advances, the market is characterized by a decidedly improved tone in heavy goods which lie near the raw material. Some complaint is made that orders from the small trade are lighter than usual, but, on the whole, indications point to the doing of a fair and healthful business, with the probability that the month's sales will be fully up to the average.

Chicago.

(*By Telegraph.*)

Hardware.—Local jobbers report business improving in Shelf Hardware rather than falling off. The demand for staple goods is very heavy and prices are stiffening. In Heavy Hardware the volume of business is fully up to the average of the past few weeks. The strength of the Iron market is helping to bring in buyers who are now becoming convinced that it would be unwise to defer their purchases. Manufacturers' agents, however, report some falling off in orders, with slightly lower prices on Bolts, Nuts and kindred goods. Their heaviest customers do not hesitate to order full lines and are sending in good specifications, but the general trade is slower. The reaction is regarded as only temporary, since raw materials are so much firmer than they were; and as soon as this begins to be felt in finished goods they will again advance and the demand will also improve.

Nails.—The situation still favors the manufacturers. Doubtless more than one now regrets having sold so freely at low prices. Orders could be had for large quantities if they would be accepted for future delivery. Both Cut Steel Nails and Wire Nails are in extremely good demand. The prices now asked by manufacturers are very close to the rates named by Chicago jobbers. Cut Steel Nails are $1.90 @ $1.95, on cars at Chicago from factory, and Wire Nails are $2.40 @ $2.45. Jobbers' prices from store are $2 for Cut and $2.50 for Wire, with 5¢ off for carloads. They are refusing to sell more than carload lots at these rates.

Barb Wire.—A very heavy demand comes from the retail trade. They are pushing the jobbers for more prompt deliveries, and the jobbers are urging the manufacturers, who are getting far behind. Prices are firm, and an advance would not be surprising under the circumstances. Wire Rods have enhanced $3 ℔ ton in the past 15 days, and with dearer raw material the price of Wire can hardly be kept down. Jobbers quote $2.90 for Painted, with 5¢ off for carloads, and 60¢ ℔ cwt. advance on Galvanized.

Barb Wire.

The extreme prices which recently prevailed in the late demoralized condition of the Barb Wire market have been withdrawn, and prices are perceptibly higher. Most of the mills are well occupied with orders, and in sympathy with the raw material, the market has a firm tone. Quotations are on the basis of 3.30¢ to 3.35 ¢ at mill for car load lots of Four Point Galvanized, but these prices are sometimes shaded. During the recent prevalence of very low prices a good many orders were booked.

Wire Nails.

The improvement in the Wire Nail market, to which we referred in our last issue, still continues, and prices are slightly higher. In sympathy with the firmness in Wire extreme quotations recently ruling have been withdrawn, and $2.25 to $2.35 may be named as the mill price for carload lots, advances being made on smaller quantities. Most of the manufacturers are fully occupied with orders, and the tone of the market is perceptibly improved.

Cut Nails.

Occasional reports of low sales, both in New York and in the territory tributary to it, continues to disturb the market. It is reported that even $1.65, delivered, has been shaded. We quote for Iron Nails in carload lots on dock, $1.70 @ $1.80.

Tacks.

The Tack market has not materially changed since our last issue and prices continue low and decidedly irregular. There is considerable difference in the quotations made by some leading makers, some of whom are disposed to pursue a conservative course and maintain prices, even at the loss of some orders, while others are making liberal concessions to induce sales. Neither is there agreement in regard to base discounts, some adhering to the discount sheet recently in use by all, with a base discount of 70 per cent., and others, including some leading makers, adopting the new base of 75 per cent. discount.

Chess, Cook & Co, Pittsburgh, Pa., issue under date June 5 the following discount sheet, which is subject to the usual 10 and 2 per cent., for cash:

American Cut Tacks	75 %
American Carpet, Blued, Tinned or Coppered	75 %
Swedes, Cut, Carpet, Upholsterers, Blued or Tinned	75 %
Gimp and Lace, Blued or Tinned	75 %
Swedes, Railroad Card or Bill Posters' Tacks	70 %
Finishing Nails and Patent Brads	70 %
Trunk and Clout Nails	70 %
Hungarian and Chair Nails	70 %
Basket Nails and Tacks	70 %
Cigar Box Nails	50 %
Looking Glass and Picture Frame Points	50 %

Brush Tacks	60 %
Glazier Points	40 %
Copper Nails and Tacks	40 %
Leathered Carpet Tacks	40 %

They also call attention to their National Tacks for household use, which are put up in one-half gross hinged lid boxes. They are presented in the following assortments:

No. 1—125 Tacks in Each Paper, Assorted.

	Per box.
40 papers, 8 ounce	$1.00
20 " 10 "	1.00
12 " 12 "	1.00

(Packed ten boxes in crate.)

No. 2—250 Tacks in Each Paper, Assorted.

	Per box.
40 papers, 8 ounce	$1.50
20 " 10 "	1.50
12 " 12 "	1.50

(Packed six boxes in crate.)

The following discount sheet has been issued under date June 5, by Loring & Parks, Plymouth, Mass., for whom John H. Graham & Co. are agents, 113 Chambers street, New York. It is subject to the usual cash discount of 10 and 2 per cent.:

Goods, Papered, Dozened and M's.	Straight weights. *	Star weights. * *	Standard weights. * * *	Special weights. * * * *
American Carpet Tacks, Blued	75 %	75 & 5 %	80 %	
American Carpet acks, Tinned and Coppered	77½ %	77½ & 5 %	80 & 5 %	82½ %
Steel Carpet Tacks, Bright and Blued	72½ %	72½ & 5 %	77½ %	
Steel Carpet Tacks, Tinned and Coppered	75 %	75 & 5 %	80 %	80 & 10 %
Swedes Iron Carpet Tacks, Blued	72½ %	72½ & 5 %	77½ %	
Swedes Iron Carpet Tacks, Tinned	75 %	75 & 5 %	80 %	
American Iron Tacks, Domestic	72½ %	72½ & 5 %	75 %	
American Iron Tacks, Foreign	70 %	70 & 5 %	72½ & 5 %	
Swedes Iron Tacks, S. S., Blued	75 %	75 & 5 %	77½ %	
Swedes Iron Tacks, S. S., Tinned	77½ %	77½ & 5 %	80 %	
Swedes Iron Tacks, Lanc., Blued	66⅔ %	66⅔ & 5 %	70 & 10 %	
Swedes Iron Tacks, Lanc., Tinned	72½ %	72½ & 5 %	77½ %	
Gimp and Lace Tacks, S. S., Blued	75 %	75 & 5 %	77½ %	
Gimp and Lace Tacks, S. S., Tinned	77½ %	77½ & 5 %	80 %	
Gimp and Lace Tacks, Lanc., Blued	66⅔ %	66⅔ & 5 %	70 & 10 %	
Gimp and Lace Tacks, Lanc., Tinned	72½ %	72½ & 5 %	77½ %	
Basket and Trimmers' Tacks, Lanc	65 %	65 & 5 %	70 %	
Basket and Trimmers' Tacks, S. S	70 %	70 & 5 %	72½ & 5 %	
Hungarian Nails	66⅔ %	66⅔ & 5 %	70 & 10 %	
Miners' Tacks, S. S	75 %	75 & 5 %	77½ %	
Miners' Tacks, Lanc	70 %	70 & 5 %	72½ & 5 %	
Common and Patent Brads	66⅔ %	66⅔ & 5 %	70 & 10 %	
Leathered Tacks	45 %	45 & 5 %	50 %	

Tinned and Coppered Tacks only.

Brush Tacks	50 %	These are not packed in other weights.
Looking Glass Tacks	50 %	
Picture Frame Points	50 %	
Carpet Tacks, Blued, by the count	75 %	
Carpet Tacks, Tinned, by the count	77½ %	

Pounds, Pound or Half Pound Papers or Bulk.

Swedes Iron Tacks, Lanc., Blued	66⅔ %	Finishing Nails	66⅔ %
Swedes Iron Tacks, Lanc., Tinned	72½ %	Trunk and Clout Nails, Black	66⅔ %
Swedes Iron Tacks, S. S, Blued	75 %	Trunk and Clout Nails, Tinned or Coppered	66⅔ %
Swedes Iron Tacks, S. S., Tinned	77½ %	Hungarian Nails	66⅔ %
Gimp and Lace Tacks, Lanc., Blued	66⅔ %	Basket Nails	66⅔ %
Gimp and Lace Tacks, Lanc., Tinned	72½ %	Chair Nails	62½ %
Gimp and Lace Tacks, S. S., Blued	75 %	Cigar Box Nails	50 %
Gimp and Lace Tacks, S. S., Tinned	77½ %		
Basket and Trimmers' Tacks, Lanc	65 %		
Basket and Trimmers' Tacks, S. S	70 %		

Miscellaneous Prices.

The Wire market continues in the improved condition, which has characterized it for the past two or three weeks, and prices are higher and more regular than during the recent break. It is thought not unlikely that a further advance beyond the present extreme prices will be made in Iron and Steel Wire, on account of the increased firmness in raw materials. Trade during the spring has not been as large as it would otherwise have been, on account of the sudden collapse in prices which deterred orders, many of which were doubtless deferred until later in the season. We are advised that stocks throughout the country are generally light, and it is thought that this fact, with the improved tone in prices, will tend to carry the spring business well into the summer months, and that manufacturers will be in a position to do a fairly remunerative business, unless they manifest undue urgency in forcing their goods on the market. Their best policy apparently would be to pursue a conservative course. The prices for large lots, which are now ruling, are from 10 to 12½ per cent. higher than the extreme discounts which were made a short time ago. The following discounts may be of interest as representing the prices at which Wire is quoted to the smaller trade:

Market.	
Bright and Annealed, Nos. 0 to 18	72½ %
Coppered, Nos. 0 to 18	70 %
Galvanized, Nos. 0 to 18	62½ %
Tinned, Nos. 0 to 18 (Tinned list)	62½ %
Stone.	
Bright and Annealed, Nos. 16 to 18	72½ %
" " Nos. 19 to 26	75 %
" " Nos. 27 to 36	77½ %
Tinned Broom, Nos. 18 to 21	5½ ¢
Galvanized Fence, Nos. 8 and 9	65 %
Annealed Fence, Nos. 8 and 9	75 %
" Grape, Nos. 10 to 14	75 %
Copper (List January 18, 1884)	25 %
Annealed Wire, on Spools	50 %
Copper Wire, on Spools	40 %
Cast Steel	50 %
Steel Music, Nos. 12 to 30	55¢

While in sympathy with the Iron market prices of many lines of Heavy Hardware have stiffened, with advances on some leading goods. The Chain market has not as yet responded and prices are substantially as heretofore. In fact we learn of some very low quotations during the past week.

The condition of the Copper market tends to give firmness to all goods in which this metal enters largely. While advances have not yet been announced, there is no doubt they will be made, if the present condition of the raw material continues, as the price of Copper is now more than 2 cents higher than it was when selling prices of sheet and other manufactured goods were fixed.

There are some signs of irregularity in the Pick and Mattock market, there being some disparity in the quotations made by leading manufacturers.

A reduction has been made in the prices of Wire Rope, which are now as follows, subject to an additional 2 per cent. for cash within 10 days from date of invoice:

	Consumers.	Dealers.
Iron and Bessemer Steel Rope	32½ %	32½&2½ %
Crucible Cast Steel Rope	40 %	40&2½ %
Galvanized Iron Rope	40 %	40&2½ %

The following prices of the Cleveland Iron Ore Paint Company, Cleveland, Ohio, will be of interest, as showing the line of Paints which they are putting on the market and the different quantity prices:

Red, dry, in less than ton lots, per pound	1¼¢
" " in ton lots, per ton	$20.00
" " in carload lots, per ton	18.00
Purple, dry, in less than ton lots, per pound	1½¢
Purple, dry, in ton lots, per ton	$30.00
" " in carload lots, per ton	27.50
One-fourth barrels, $2 per ton extra.	
Red, ground in Oil, put up in kegs and pails, per pound	4½¢
Red, ground in Oil, put up in barrels and ½ barrels, per pound	4¢
Purple, ground in Oil, put up in kegs and pails, per pound	4½¢
Purple, ground in Oil, put up in barrels and ½ barrels, per pound	4¼¢
Red, mixed, ready for use, from 1 to 5 gallons, per gallon	$1.00
Red, mixed, ready for use, from 5 to 15 gallons, per gallon	85¢
Red, mixed, ready for use, in barrels and ½ barrels, per gallon	75¢
Purple, mixed, ready for use, from 1 to 5 gallons, per gallon	$1.10
Purple, mixed, ready for use, from 5 to 15 gallons, per gallon	95¢
Purple, mixed, ready for use, barrels and ½ barrels, per gallon	85¢
Garry Iron Roofing Company's Cement, per pound	10¢

Holding Customers to their Contracts.

Many manufacturers manifest an unnecessary timidity in holding their customers to their contracts in purchasing goods, apprehending that unless the wishes of the buyer, which may be unreasonable and decidedly contrary to the manufacturer's interest, are acceded to there would be a rupture in relations which will in the long run be more disastrous than any temporary loss incurred by yielding to his demand. Whatever force there may be in this argument there are doubtless other considerations which bear in the other direction, and should lead manufacturers to an independence which would be more to their credit, and in many cases more to their advantage, than the timid course often pursued. Weak-kneed manufacturers are not generally those who make the best success. Touching upon this point there has come to our knowledge an instance in which a prominent manufacturer of Wire held a valued customer to the acceptance of goods in accordance with contract, notwithstanding their request that the unfilled portion of the order should be countermanded. The case is stated in the following terms:

A prominent jobbing house sent us quite an order for shipments running through some weeks, and when but a small portion of the order had been delivered, as the market showed a little weakness quite unexpected to every one, they wrote us requesting us to cancel the order. We said to them in substance that we had bought the material out of which to manufacture

the Wire in good faith, and were prepared to execute our part of the contract; that if the market had advanced materially they would not have permitted us to cancel the contract, and we saw neither reason nor equity in permitting them to do so. We had several letters pass between us but apparently without being able to prompt them to modify their position. Finally just before the date for deliveries expired we sent them an invoice for the unfilled portion of their contract, and told them that the goods were subject to their order, and that if the invoice was not paid at maturity we should hand it to an attorney for collection. They became convinced then that we were in earnest, and asked us if we could not extend the time for delivery. This we cheerfully consented to do, and the Wire was all taken at contract price and paid for when due. We supposed that in taking this position they would never have anything more to do with us, and had counted the cost of just such possible action, but felt that we were doing all of our competitors in the manufacture of Wire a favor, and acting but in justice to our own interests. Evidently, however, the house in question respected proper business dealings and have continued to trade with us up to the present time. Possibly this illustration may be of some encouragement to some who are "weaker kneed."

Items.

Richardson Brothers' Saw Work, Newark, N. J., have been purchased by Henry Disston & Sons, Philadelphia. The announcement of this important transaction has been received by the trade with much interest. We are advised that the Richardson factory will be operated as heretofore and the enviable reputation established for the goods maintained. The manufacture of Saws in Newark was commenced by the Richardsons in 1860, and from a very small beginning there has been a constant growth to the prominent position occupied by their goods at the present time, a remarkable instance of a successful manufacturing career on the basis of good workmanship and wise and conservative business management. In connection with this transfer of interests the trade are naturally desirous of knowing whether there will be a further consolidation of Saw interests, and it is reported that negotiations are now in progress with the Harvey W. Peace Company, of Brooklyn, but in regard to this no definite announcement is made.

It is announced under date of June 2 that Charles H. Naylor and Charles L. Flack have formed a partnership for the the purpose of conducting a Hardware commission business at 121 Chambers and 103 Reade streets, New York. Mr. Naylor was formerly connected with the Reading Hardware Company, with whom he has been for the past 12 years. It is also announced by H. G. Morris that he has severed his connection with the Reading Hardware Company and accepted a position with the above firm.

W. M. Caldwell, 75 Chambers street, New York, agent for the sale of goods not regularly offered in the market, announces that he is again engaged in the "special lot" business, to which he refers in the following terms:

The very long experience I have had in all branches of Hardware and cutlery, covering every market on the continent, furnishes more than ordinary opportunities of finding ready sale for goods manufactured from metals that from any cause it may not be desirable to offer your regular customers. It is quite possible to find "out of the way markets" for any line which, for special reasons—viz., off sizes, seconds, over stocks, or articles superseded by new styles or improvements—that you would prefer to dispose of at low prices rather than create friction with your regular trade. I conducted this line of business successfully in past years, and feel confident it can now be resumed with satisfaction to those who will favor me with business.

Champion Tool and Handle Works, Evart, Mich., in their advertisement on page 72, illustrate some of their leading Champion Lumbering Tools, alluding to the large and complete line of standard and special size Lumbering Tools which they are manufacturing, descriptions of which are given in their catalogue.

American Wheel Company, Chicago, Ill., have established their general office in that city, and request that in future orders for Wheels and material and all correspondence relating thereto be addressed to the Chicago office. It is their intention to run each of their factories on a special line of their goods, with a view to producing a larger output from the same machinery and greater efficiency in the manufacture. At the general office a full and complete report of the material on hand at all the factories will be kept, so that they will be able to determine upon receipt of an order from which factory the goods can be supplied most advantageously. It is stated that steps have been taken to bring the manufacturing and grading at all their factories to the same standard, but until this is accomplished they will endeavor to accommodate buyers with any particular brand which they may desire, unless this will necessitate unusual delay in the completion of the order. The company therefore request that all orders for the different brands (excepting Eastern orders for execution at their West Chester factory) should be addressed to Chicago.

Under date June 3 announcement is made that the firm of Bartholomew & Co., Hardware merchants, Michigan City, Ind., has been dissolved by mutual consent, E. F. Van Nest retiring. All accounts due or against the firm will be settled by V. W. Bartholomew, who will continue the business under the old name of Bartholomew & Co.

Chambers Brothers Company, Philadelphia, Pa., have recently added a larger size to their assortment of Bolt and Rivet Clippers. It is designated as No. 4 and cuts ¾-inch bolts.

Baeder Flint Paper Company, Arlington, N. J., announce under date May 31 that they will hereafter be known and designated as the Standard Flint Paper Company (incorporated), and in soliciting orders assure their customers that the standard of their goods will remain the same as heretofore.

Gilbert & Bennett Mfg. Company, 42 Cliff street, are introducing a Door and Window Screen Wire Cloth, under the name of "Pearl," which is covered with spelter, giving a bright smooth surface, the purpose of which is to render it rust proof. The cost is about double that of green or black painted screen wire. We are advised it is regarded as superior for the following reasons: It will not rust or wear out; that it does not intercept the vision; that it allows a free circulation of air; that dust and dirt will not adhere to its surface; that it never requires repainting; that the finish does not become sticky or crack off the wire; and that it can be easily stretched on frames. It is shown in three grades, the Regulator, Extra Heavy and Twilled. The widths, carried in stock, are from 24 to 48 inches. The coating is put on the wire before weaving, and the wires are not soldered where they cross each other, as in galvanized wire cloth.

As an instance of enterprise it is worthy of mention that two prominent Western Hardware firms solicited orders for screen wire cloth as early as last September, for March delivery. We understand, as an inducement to customers to place orders at so early a date, they were enterprising enough to arrange to ship carloads to central points, with no cost to the purchaser, whence it was distributed.

Hibbard, Spencer, Bartlett & Co., Chicago, have lately increased very materially their line of Silver Plated goods. They now carry a full stock, from the cheapest grade to the dearest. The demand for these goods is constantly increasing from their customers. Many retail Hardware dealers, who at one time could not be induced to handle them for fear of loss through tarnish, are now carrying stocks regularly, and find that their patrons are buying them with pleasing liberality. Silver Plated Ware is now as safe to deal in as Cutlery. The fine lacquer finish which is used by all manufacturers prevents the goods from tarnishing and does away with the cleaning apparatus formerly necessary. Hibbard, Spencer, Bartlett & Co. now have in stock a line of the newest goods out in bright silver, embracing fancy articles such as Hair Brushes, Mirrors, &c. They handle a great variety of ornamental goods as well as staple articles in Table Ware. A new departure has recently been made by this house in regard to fine Door Locks. They have had a large number of these Locks mounted, ready for exhibition on a counter, and inclose one mounted with every order for such Locks, charging for the Lock only and not for the mounting. The blocks used are choice pieces of wood, neatly varnished, having a broad base, and the Locks thus mounted will doubtless be appreciated by the retail trade.

Price-Lists, Circulars, &c.

Ludlow-Saylor Wire Company, St. Louis, Mo., issue a folder relating to some of their leading goods, of which illustrations are given. Among these we observe the artistic Metal Grille, illustrated a short time ago in these columns.

The United Indurated Fiber Company, Lockport, N. Y., issue a small, blue covered, descriptive catalogue and price-list of 64 pages, giving full information in regard to the Indurated Fiber Ware. They also send a circular letter, warning parties not to infringe on their patents.

The Chapman Mfg. Company, Meriden, Conn., are introducing a line of Ladies' Leather Belts and Ladies' and Gents' Tennis Belts. They refer to the Ladies' Leather Belts as having a new design of fastening with nickel or oxidized finish. Their All Silk Tennis Belts are alluded to as also having new designs in buckles and finish, and we are advised that these Belts are warranted all silk. The company also manufacture a line of worsted and cotton Tennis Belts.

The Main Belting Company, 1219–1223 Carpenter street, Philadelphia Pa., and 248 Randolph street, Chicago, Ill., manufacturers of Leviathan Belting, are sending out a descriptive price-list of their Belting, including also a few of the testimonials that have been received from those who have used it. This Belting is referred to as having been on the market for over eight years, and favorably known by those who have used it. It is described as having been subjected to severe tests, of its strength, durability, and traction power. The point is made by the manufacturers that this Belting is not affected by either steam or water, and that heat will not injure it. The mechanical construction of this Belting is alluded to as being such that the weight and strength is the same throughout its entire length, thus obviating jumping or uneven motion.

C. E. Hudson, Leominster, Mass., has issued circulars relating to his Rocking Table, Little Star and Daisy Parers. The Daisy Parer, Corer and Slicer is described

as a well built machine, and, while it does not possess the merits of the Little Star, which is built for a better and more expensive machine, it is claimed that it is the best machine on the market for the price. Mr. Hudson has just brought out a new Parer, which is to be known as the Anchor. It pares the apple and pushes it from the fork as soon as the skin is removed. The working parts of this machine are attached to the standard in such a manner that it is impossible for the parings to fall upon it. This machine is designed to compete with any geared Parer in the market, but it is explained, although the machine is well built and will do fair work, it is not to be compared with the Rocking Table Parer, the reliability and excellence of which are especially emphasized.

L. M. Rumsey Mfg. Company, St. Louis, Mo., are issuing circulars of unique and artistic arrangement and of a forcible and unconventional style, which doubtless adds materially to their efficiency in calling the attention of the trade to the goods to which they relate. Two of these circulars refer to their business in Pig Lead, Lead Pipe, Sheet Lead, Iron Pipe, Metal, &c. The style of these circulars is indicated in the one given below, which has, perhaps, an incidental interest as connected with the prompt filling of orders, a question which has been discussed at some length in these columns. This circular, which is set forth in striking typography and has unique illustrations, is in the following terms:

We formerly had with us some good men who were in the habit of delaying shipment of orders in their hands. They have been "fired." Of course they found ready employment with other houses, so no regrets are necessary.

Our full crew is now made up of genuine hustlers, built on the "storage battery" plan, and fully guaranteed for years to come. They work perfectly.

Comment is unnecessary. Facts speak for themselves. Give us a dose of any loose orders you have lying about and be convinced.

Yours, with a big move on us.

The Stover Mfg. Company, of Freeport, Ill., have just issued a very neat 32-page catalogue of their Hardware specialties. The articles illustrated and described are the New Idea Spring Hinge, the Ideal Lock Back Spring Hinge, the Ideal Let Down Spring Hinge, the Ideal Sash Pulley, either for mortising machine, two-hole auger mortise or four-hole auger mortise; the Ideal Face Plate Sash Pulley, Shutter Knobs, Screw Pulleys from 1¼ to 5 inches in size; Door Pulls and Buttons, Sash Locks and Lifts, oblique Store Door Handles, Barn Door Latches, Bolster Plates, Cast Washers, Brackets, Foot Scrapers, Stove Cover Lifters, Stove Pipe Registers and Ventilators, the Tiger Corn Sheller, &c. The company also manufacture special machinery and farm implements and take contracts for light or heavy castings.

The Lunkenheimer Brass Mfg. Company, Cincinnati, Ohio, in connection with their price-list printed in copying ink in their usual form, send out circulars relating to the Junior Sight Feed Lubricator, of which an illustration is given, and also one showing their Straightway Handy Valve.

Braunsdorf & Gerstner, 634 Eighth avenue, New York, issue circulars describing special tools which they are putting on the market. Forhan's Blued Tenon is made of tin, painted green, and is designed to be applied to the ends of slats, a hammer being used in its application. McCullough's Combination Gauge is made of hard wood, and is designed for hinging doors and gauging for mortise locks and strikers. The Common Sense Blind Adjuster is made of malleable iron, hinged, with notches on the lower edge of the longer end. These notches are used for the purpose of keeping the blind partially opened. The merits of these articles are pointed out.

The American Folding Chair Company, St. Louis, Mo., issue a tastefully arranged pamphlet, the binding consisting of a piece of colored cord. It illustrates their Improved Folding Lawn Settees. They refer to these as having no bent wood to warp and splinter, folding easily and compactly, and combining lightness and strength. The slats are alluded to as being strung on coppered Bessemer steel wire, and as being as comfortable as an upholstered seat. They manufacture folding chairs embodying the same construction.

C. T. Ham Mfg. Company, Rochester, N. Y., issue a 47-page illustrated catalogue of their Lamps and Lanterns. Their output consists of Tubular Lanterns, Street Lamps, Station Lamps, Bridge Signal Lamps, Dash Lamps, &c., of which a very complete and attractive line is shown. We are advised that Lamps and Lanterns of all descriptions are made to order from samples or tracings.

John H. Clay, 1320 Ridge avenue, Philadelphia, Pa., whose advertisement appears on page 62, issues an illustrated catalogue of fire department and engineers' supplies which are put on the market by him. Mr. Clay refers to the fact that his experience in the extinguishment of fires enables him to offer a line of goods of superior quality and design. Especial attention is called to the Clay Double Acting Door Bolt, made expressly for engine doors. The catalogue will be of interest to those desiring information in regard to such goods.

The St. Louis Screw Company, St. Louis, Mo., are sending out a colored illustrated hanger, representing their Top of the Hill Hog Ringers and Rings.

The Alaska Refrigerator Company, Michigan City, Ind., issue a 64-page illustrated price-list of their Alaska Refrigerators. These are made in a variety of styles and sizes. The 1st of the present month these manufacturers shipped a large consignment of Refrigerators to New England.

Colt's Patent Fire Arms Mfg. Company, Hartfort, Conn., have issued a new edition of their 1888 catalogue, in which their well known line of Military, Sporting and Defensive Arms, &c., is very satisfactorily represented.

The Bucher & Gibbs Plow Company, Canton, Ohio, issue a descriptive catalogue of their Imperial Plows, Gibbs' Imperial King Gang Plows, Gibbs' Imperial Queen Steel Gang Plows, Imperial Adjustable Harrow and the Imperial Lever Harrow. They refer to the various styles of Plows that they have introduced within the last four years, particularly adapted to California, Minnesota, and the Dakotas. We are advised that their annual production now aggregates over 200,000 Plows.

The New 1890 Nail Puller is listed at $30 per dozen, and subject to a discount of 50 and 10 per cent. These goods are manufactured by the Chantrell Tool Company, Reading, Pa., for whom John H. Graham & Co., 113 Chambers street, New York, are general agents.

The Cincinnati Tool Company, 216 to 222 West Second street, Cincinnati, Ohio, are sending out an illustrated catalogue of their Mechanics' Tools, which shows a large variety of this class of goods. Brace Twist Drills, for metal, are subject to a discount of 45–10 per cent. Bell Hangers' Bits, Brace Twist Drills, for wood, Dowel Bits, Straight Shank Machine Bits, for metal, and Straight Shank Machine Bits, for wood, are subject to a discount of 30–10 per cent. All other goods shown in the catalogue are subject to 25–10 per cent discount from the list.

The Cleveland Twist Drill Company, Cleveland, Ohio, send their 1890 illustrated price-list descriptive of their large line of Twist Drills, Self-Feeding Reamers, Taps, Cutters, &c. We are advised that during the past year they have enlarged their list, including many sizes never before listed or carried in stock. They refer to the increase in their business during the past six months, which was such that a number of new lathers were added in the month of May for turning Drills, &c.

The Lippy Cash and Package Carrier Company, Canton, Ohio, are introducing a Cash Carrier, for which they make claims of simplicity, rapidity, ease of operation, and that it avoids the bang in stopping. They make the point that the carriers are leased or sold as desired.

The Canton Novelty Cutlery Company, Canton, Ohio, issue an illustrated circular of their Pocket Cutlery. They allude to the novelty as lying in the handle, which is made of transparent celluloid, underneath which photographs, designs, emblems, &c., are placed. Their circulars show some of the many ways in which this principle may be applied.

Childs & Jones, Utica, N. Y., are introducing a Rennet Extract under the name of Coagulin. They refer to this as being perfectly pure, and productive of more curd and cheese. The manufacturers allude to the practice of the Hardware trade of keeping it in stock in some dairy sections of the country.

The Composite Iron Works, 83 Reade street, New York, W. R. Pitt, proprietor, issue an illustrated catalogue, 11 x 14 inches, of nearly 150 pages, showing their Iron Railings, Wire Counter Railings, Pipe Railing, Cast Iron Posts, Wire and Iron Fences and Gates, Verandahs, Lamp Posts, Stable Fixtures, &c. They are also sending out a catalogue illustrating the Bostwick Folding Gates. Both of these books are profusely illustrated, giving an excellent idea of the large line of articles represented.

Chandler & Washburn, 30 Kilby street, Boston, Mass., issue circulars describing their Quick Action Vises. These are illustrated in various styles, such as Mechanics', Woodworkers', Wood and Shoe Patternmakers' Vises, &c. They allude to these Vises as being suddenly opened or closed without the use of the screw, or if desired, worked by the screw throughout their entire length. They refer to the fact that these Quick Action Vises have a whole Nut, and that the surface and working parts are nicely fitted. The point is also made that these Vises have great tenacity of grip which cannot be jarred loose. They call particular attention to their No. 5 Wood Patternmakers' Vise, which they have added lately, the jaws of which are said to stand a number of inches above the bench. This pattern is designed to supply a class of Vise for which there is likely to be an increasing demand. We are advised that they are expecting soon to put upon the market a number of new styles and sizes of the Mechanics' Vises.

The Columbus Buggy Company, Columbus, Ohio, are sending out an illustrated catalogue descriptive of their manufactured vehicles. The front page represents their factory in 1875 as being a cross road blacksmith shop; and another illustration on the same page showing their present buildings, which exhibits a marked contrast.

Obituary.

The death of Hermann Funke, Jr., of Hermann Boker & Co., 101 Duane street, New York, at the age of 39 years, occurred on Monday. Very much regret and sorrow are expressed at the unexpected termination of a business career of exceptional promise of one who was held in very high esteem by his many friends. Much sympathy is expressed for his father and for the house of which he was a prominent and rising member. His funeral was attended yesterday from his late residence, College Point, Long Island. A meeting of the Hardware Board of Trade, 4 and 6 Warren street, New York, will be held on Thursday, June 12, at 3 o'clock, to take action upon the death of Mr. Funke.

The trade will learn with regret of the death, June 2, of William Schollhorn, head of the manufacturing firm of William Schollhorn & Co., New Haven, Conn. The manner in which he is referred to by those who knew him indicates the esteem in which he was held, and his sterling integrity, industry and business energy and ability, as well as the success which he achieved, are also alluded to. The following account of his business career, for which we are indebted to the New Haven *Journal and Courier*, will be of interest:

Mr. Schollhorn was a native of Wittemberg, Germany, born in 1834, and removed to this country in 1854. After a short stay in New York he removed to New Haven and worked for a few years in the Whitneyville armory, where he learned the trade of a machinist. He rapidly developed into a very skilled workman. In 1863 he started into the machine business for himself in the Stafford building, State street, where he remained until 1869. From there he removed to the building of the New Haven Folding Chair Company, where his business continued to grow and increase. Here he remained until the spring of 1870, when an explosion of the boiler occurred, entailing upon Mr. Schollhorn considerable loss. He had a fortunate escape, as he was out of town the day of the explosion. Had he been on the premises he no doubt would have lost his life, as he generally occupied a post at the factory where the principal havoc of the explosion occurred. Nothing daunted by his losses he removed his business to a part of the premises occupied by the Hooker Carriage Company. Here, finding a favorable prospect, he enlarged his business by the addition of scissors and shear manufacturing and took in as partner the late Captain Frank W. Tiesing, one of his old friends and associates at the Whitney Armory. Julius Berbecker, of New York, a prominent importer, also became associated as a partner. Under the firm name of the Schollhorn & Tiesing Mfg. Company the partners conducted business with ever-increasing prosperity until the death of Captain Tiesing, about two years after forming the partnership. Mr. Berbecker then purchased of the widow of Captain Tiesing her late husband's interest in the business, and the firm name was changed to William Schollhorn & Co. In 1888 the business of the concern demanding much larger quarters, the concern erected the large new brick manufactory on Wooster street, corner of Wallace streets, and removed its business there, where continued prosperity attends it. The deceased leaves a most honorable record as a citizen and business man. His name was synonymous with business integrity. He was a man firm and strong in his convictions, possessed of a wide range of information, and was a devoted husband and father, beloved by his family and esteemed in the community at large.

A recent issue of the *Journal*, Henderson, Ky., announces the death of Jacob F. Mayer, who is referred to as a prominent business man and a highly esteemed citizen. He was born in Mosbach, Germany, July 7, 1830, and removed with his father to this country when but two years of age. The greater part of his life has been spent in Henderson, where he has been engaged in the Hardware business, first with his father and brother Virginius, and latterly alone.

Hardware Competitions.

Competition No. 1, relating to the "Care of Price-Lists," having closed, the following competitions are still open:

All contributions sent in shall be the property of *The Iron Age*, with the right to publish them in such way as may be deemed advisable.

No. 2.—The Cost of Goods.

The object of this competition is to secure descriptions of methods for keeping quotations so as to keep the buyer advised in regard to the prices made to him by parties from whom he purchases. The way in which this is done should be clearly explained in detail, whether it be by marking prices in catalogues, &c., recording them in a price-book, or by special cards or other devices for this purpose. If a price-book is used its arrangement should be shown by sample pages with prices marked on them, and any other method should be made plain by suitable illustrations.

FIRST PRIZE.....$100
SECOND PRIZE..... 50

This competition will remain open until the close of business June 30, 1890

Contributions are to be addressed to *The Iron Age*, 66 and 68 Duane street, New York, marked "Prize Competition No. 2."

No. 3.—Marking Prices.

The object of this competition is to secure descriptions of approved methods of marking prices for salesmen's use.

If one or more ciphers are used their method of use should be explained, with examples of the markings of different goods.

If price-cards are used their arrangement, size, method of use, location in store, &c., should be explained.

Attention should be given to the different ways in which prices of different kinds of goods are marked, such as Shelf Goods, Heavy Hardware, Metals, Cutlery, &c.

FIRST PRIZE.....$100
SECOND PRIZE..... 50

This competition will remain open until the close of business July 31, 1890.

Contributions are to be addressed to *The Iron Age*, 66 and 68 Duane street, New York, marked "Prize Competition No. 3."

No. 4.—Good Buying.

The object of this competition is to secure papers in regard to buying. It is intended to call out information as to how advantageous prices may be obtained, the system adopted in regard to ordering goods, and such practical suggestions in regard to the matter as will represent the principles to be followed by careful and successful buyers. In this connection an explanation should be given of the method by which the buyer is advised in regard to the goods required, whether by the use of want-book, stock-book, the records of business of the past year or otherwise. Samples should also be given of any blanks used.

FIRST PRIZE.....$100
SECOND PRIZE..... 50

This competition will remain open until the close of business, August 30, 1890.

Contributions are to be addressed to *The Iron Age*, 66 and 68 Duane street, New York, marked "Prize Competition No. 4."

No. 5.—The Use of The Iron Age in Hardware Stores.

The object of this competition is to secure essays relating to the use to be made of *The Iron Age* in connection with the Hardware business, whether in its advertising or reading columns. It is desired that competitors express their views on the subject in a practical and business-like way.

FIRST PRIZE.....$100
SECOND PRIZE..... 50

This competition will remain open until the close of business, September 30, 1890.

Contributions should be addressed to *The Iron Age*, 66 and 68 Duane street, New York, marked "Prize Competition No. 5."

The Committee of Award in regard to Competition No. 1, relating to the care of price-lists, have not yet completed their work, but it is evident that several excellent methods are described in the contributions which have been received. In this connection we would call the attention of Hardwaremen, and especially of Hardware buyers, to the next competition, closing June 30, the object of which is to secure descriptions of methods for keeping quotations so as to keep the buyer advised in regard to buying prices. This is obviously a matter of considerable importance in every well regulated Hardware store, and in regard to it considerable diversity of method prevails. It is desirable that explanations be sent of any system which has been found satisfactory in its working, whether prices are kept in a special price book, marked in catalogues, price-lists, &c., or otherwise. In addition to the incentive which there may be in the prizes offered, it is hoped that many will send in their contributions on this subject for the benefit of the trade, that full information may be obtained in regard to desirable methods

Exports.

PER BARK RUD. JOSEPHY, MAY 19, 1890, FOR DUNEDIN, NEW ZEALAND.

By H. W. Peabody & Co.—300 pounds Eyelets, 8 Road Carts, 4 cases Hardware, 1960 pounds Nails, 10 dozen Forks, 33,600 pounds Barb Wire, 40 sets Axles, 900 pounds Nails, 2 cases Sandpaper, 1 cask Pumps, 25 packages Hardware, 2 barrels Sash Cord, 4 dozen Hoes, 24 Wringers, 33,600 pounds Barb Wire, 1 case Wireware, 3 cases Bolts, 20 dozen Rakes, 12 dozen Forks, 1 Wringer, 6 Plows, 2100 pounds Horse Nails, 7 cases Hardware, 12 Wringers, ½ gross Traps, 900 pounds Nails, 1 case Brushes, 1 case Emery Wheels, 21 packages Hardware, 10 Stoves, 1 dozen Rakes, 10 packages Hardware, 1 bale Sash Cord, 5000 Cartridges, 9 dozen Forks, &c., 4½ dozen Wringers, 20 gross Paper Caps, 10 packages Lampware, 1 case Wire Cord, 1 Wringer, 5 cases Tools, 1 package Drills, 35,526 pounds Barb Wire, 68 cases Agricultural Machinery.

By R. W. Forbes & Son.—1 box Platedware, 7 boxes Hardware, 5000 Cartridges.

By Rogers, Smith & Co.—4 packages Platedware.

By Strong & Trowbridge.—24 Lawn Mowers, 45 Pumps, 4 dozen Drills, 2 dozen Sad Irons, 5 dozen Fork Handles, 1 dozen Forks, 9 dozen Locks, 1 dozen Saws.

By the F. B. Wheeler Company.—1 case Carriage Hardware, 2 dozen Whip Sockets, 5 cases Hardware, 1 case Platedware, 4 cases Electrical Goods, 20 sets Axles, 1 set Screw Plates, 5 boxes Carriage Hardware.

FOR NELSON.

By R. W. Forbes & Son.—6 dozen Axe Handles, 5 packages Stoves, 3 cases Plows, 2 packages Pumps, 7 packages Hardware, 3 dozen Snaths, 2 cases Stampedware, 6 packages Lawn Mowers, 11 packages Stoves, 66 dozen Pick Handles, 2 packages Churns, 600 pounds Horse Nails, 24 bozes Horse Nails, 5 dozen Forks, 3 dozen Snaths, 3 cases Wringers, 30 kegs Cut Nails.

By H. W. Peabody & Co.—50 cases Axes, 55 cases Edge Tools, 6 dozen Forks, 3 packages Lawn Mowers, 3000 pounds Nails, 56,000 pounds Barb Wire.

PER BARK JAS. L. HARWAY, MAY 20, 1890, FOR ADELAIDE, AUSTRALIA.

By Rogers, Smith & Co.—3 packages Platedware.

By Simpson, Hall, Miller & Co.—2 cases Platedware.

By L. D Crossmond & Co.—3610 pounds Agricultural Implements.

By W. A. Wood,—150 packages Harvesters and Binders, 5 boxes extra parts Harvesters.

By W. H. Crossman & Bro.—6 cases Hardware, 12 dozen Traps, 45 sets Axles.

By Arkell & Douglas.—2 dozen Wringers, 6 dozen Levels, 2 dozen Oil stoves, 11 Stoves and parts, 1 case Wire Cloth.

By R. W. Cameron & Co.—158 boxes Agricultural Implements, 90 dozen Axe Handles.

By R. W. Forbes & Son.—5 packages Carriage Hardware, 3 dozen Axes, 3 packages Carriage Hardware, 5 packages Household Utensils, 3 packages Wringers, 1 case Silverware.

By McLean Bros. & Rigg.—309 packages Harvesting Machinery, 3½ dozen Wringers, 3 dozen Meat Choppers, 57 dozen Garden Tools, 3 dozen Wrenches, 6 dozen Hammers, 6 dozen Saws, 2 dozen Wringers, 1 dozen Mangles, 10 dozen Door Springs, 12 dozen Mouse Traps, 3 dozen Wrenches, 20 dozen Axes, 8½ dozen Wrenches, 3 dozen Axes, 3 reams Sandpaper.

By H. W. Peabody & Co.—300 feet Hose, 2 cases Hardware, 2 cases Axles, 2 dozen Pumps, 10 packages Hardware, 3 cases Hardware, 1 case Wire Goods, 1 case Traps, 1 dozen Cork Pullers, 1 case Hardware, 1 case Stoves, 9593 pounds Castings, 12 packages Stoves, &c.; 1 case Hardware, 33,176 pounds Barb Wire, 2 packages Platedware, 14 packages Rubber Goods, 1 case Wireware, 4 cases Hardware, 4 packages Hardware, 5 packages Stoves, 2 cases Platedware, 60 dozen Handles, 3 cases Hardware, 1 case Wire Cloth.

FOR ADELAIDE AND BRISBANE.

By Mailler & Quereau.—2 cases Saws, 1 case Thermometers, 6 cases Scales, 36 crates Stoves, 10 cases Axes, 22,481 pounds Barb Wire, 2 cases Wringers, 1 case Spades, 2 cases Lampware, 7 dozen Forks, 1 case Snaths, 20 packages Hardware, 289 packages Harvesters and Binders, 109 packages Harvesters and Binders.

PER SHIP BRACADALE, MAY 22, 1890, FOR MELBOURNE, AUSTRALIA.

By H. W. Peabody, & Co.—28 cases Hardware, 4000 pounds Nails, 3 cases Picks, 8 cases Wringers, 1500 feet Hose, 2 cases Axles, 3 cases Bolts, 1 case Wringers, 7 packages Hardware, 3 packages Lampware, 45 cases Hardware, 55 packages Lawn Mowers, 5500 Cartridges, 2 packages Hardware, 11,200 pounds Barb Wire, 38 cases Skewers, 1 case Emery Wheels, 1 case Scales, 24 packages Edge Tools, 1 case Hardware, 1 case Lampware, 3 cases Hardware, 32 cases Edge Tools, 7 cases Castings, 1 case Stove Linings.

By Morris Strouse & Co.—8 gross Brackets, 6 dozen Bench Screws, 6 dozen Axes, 15 dozen Wrenches, 7 cases Hat and Coat Hooks, 3 dozen Hammers, 6 gross Hat and Coat Hooks, 3 gross Sad Iron Stands, 33 dozen Hammers, 1 dozen Money Drawers, 36 dozen Fly Traps, 15 dozen Door Springs, 36 dozen Door Latches, 12 dozen Egg Beaters, 4 dozen Plumbs and Levels, 3 dozen Saws, 42 dozen Hammers and Vises, 60 dozen Picture Wire, 8 dozen Wrenches, 1 dozen Carpet Sweepers, 2 gross Chalk Lines, 2 gross Iron Tacks, 70 gross Iron Butts, 142 pounds Stones, 2½ gross Hammers, 21 gross Mouse Traps, 2 dozen Meat Choppers, 21 dozen Dog Collars, 6 dozen Gun Rods, 12 dozen Gun Implements, 3½ gross Thermometers.

By McLean Bros. & Rigg.—300 packages Harvesting Machinery.

By Strong & Trowbridge.—1 case Emery, ½ dozen Wringers, 2 cases Lampware, 20,000 Cartridge Shells, 4½ dozen Ice Cream Freezers, 25,000 Cartridge Shells, 100 Revolvers, 20 kegs Nails, 12 dozen Fly Traps, 33 Meat Choppers, 102 dozen Tacks, 9 dozen Door Springs, 200 pounds Hardware, 18 dozen Locks, 6 sets Sad Irons, 60 dozen Nuts and Bolts, 3 dozen Banks, 55,000 Rivets, 24 Pumps.

By W. H. Crossman & Bro.—6 dozen Hinges, 5 dozen Bench Screws, 24 dozen Lanterns, 75 dozen Forks, 4 cases Hardware, 20 dozen Bells, 4 packages Pump Parts, 2 dozen Scoops, 3 gross Parers, 2 dozen Cork Pullers, 1 case Lamp Goods, 5 dozen Toy Banks, 14 dozen Potatoe Hooks, 7 cases Hardware, 1 dozen Miter Boxes, 2 Planes.

By R. W. Forbes & Son.—11 packages Carriage Hardware, 258 dozen Axe Handles, 6 dozen Wrenches, 3 boxes Pumps, 4 crates Garden Pumps, 11½ dozen Forks, 10 dozen Curry Combs, 7 packages Hardware, 80 dozen Forks, 4 packages Hardware, 2 packages Carpet Sweepers, 17 crates Stoves, 18 cases Wringers, 12 cases Meat Choppers, 26 packages Refrigerators, 18 dozen Drills, 2 cases Stamped Ware, 20 dozen Axe Handles, 12 dozen Lemon Squeezers, 4 packages Kitchen Ware, 5 pair Shears.

REVIEW OF THE WHOLESALE MARKET IN PAINTS AND OILS.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Paints and Colors.

The decline last week in the corroders prices for White Lead had the effect of checking business in that and other Pigments for a time, but orders are now coming along in about the usual way and the general distribution is referred to as fairly satisfactory. There is, naturally, a feeling of uncertainty among buyers, owing to the apparent inclination on the part of the National Lead Trust to regain trade that has gone elsewhere, and all lines of goods, down to the cheapest varieties of Mixed Paints, into which the Pigment enters, are purchased only as immediate wants dictate. Imperative requirements, however, are quite large and the volume of business is good despite the rather adverse influence. Of Zincs and the general line of staple Colors there continues to be a very good movement and the market retains good form, with little movement of prices, and that little in the direction of a higher level.

White Lead.—No further changes in prices are announced. The chief competitors of the National Lead Trust in pure Carbonate are less aggressive, and believed to have sold their production up to such an extent that they are not so much of a disturbing factor as heretofore. However, the output and sale of mixed Leads continues large. Manufacturers and jobbers, in fact, state that the distribution of those varieties does not appear to be affected by the late reduction in prices of pure Lead, except so far as the consequent uncertainty may have a restraining influence upon buyers' operations. There is very good authority for the statement that the sale of second and third qualities has increased at least 50 % thus far this year. Manufacturers of these goods have been persistent in introducing them, and practical experiment seems to have convinced painters that the cheaper Pigments are a great deal the most economical for nearly all purposes. The difference in price far exceeds the difference in spreading capacity, and even at the late reduced quotations there is a margin of 1 @ 1½¢ ₱ pound that seems to act against painters replacing the cheaper goods with pure Lead. These second and third qualities, so-called, are sold at from 6¢ down to 5¢, with a good margin of profit to the manufacturers. Jobbers' prices for pure Lead are very irregular now that there is no effort on the part of the Trust to maintain limited selling rates. Lots of a few kegs are not infrequently let go at the card rate for 5-ton lots when buyers place orders for a general assortment of goods, or make a good purchase of articles that jobbers handle to advantage.

Zincs.—The position of the market has not changed perceptibly. Ores continue scarce and dear, but orders for Oxide are filled at former prices with little ceremony. The general distribution is good. Foreign brands are firm at old prices and meeting with about the usual sale.

Colors.—Since the advance in the price of Vermilion there have been no important changes in values, and the market for nearly everything in the line of housepainters' and grinders' colors remain steady. There is a good general distribution, but nothing in the way of particularly heavy buying of any class of stock dry or in oil.

Miscellaneous.—The trade demand for ready mixed Paints is hardly as good at present as it was a few weeks ago, but the distribution continues free. There has been no change of importance in the market for Chalk, Whiting, Paris White, &c.

Oils and Turpentine.

Transactions in the leading varieties of Animal and Vegetable Oils have been of ordinary character and about the usual volume. The general demand is fair and the position of supplies, as a whole, such that prices are kept quite steady nearly all along the line without a special effort on the part of dealers or manufacturers. Speculative interest is not perceptible in any line, and there are no influences calculated to induce ventures that way. To the contrary, buyers, as well as sellers, seem partial to conservative policy. Crude materials generally are favorably situated, and the outlook favors slightly higher prices in the near future rather than any turn in the other direction.

Linseed Oil.—The demand from large consumers is not quite as free at the present time as it was a week ago, but the movement otherwise is liberal and the market remains in strong position, with previous prices ruling for both city and out of town brands.

Cotton Seed Oils.—Crude product has had limited sale, but is firmly held at 32¢ @ 33¢ for prime quality Of Summer Yellow there is yet a fair movement in moderate sized lots at slightly variable prices, with 36½¢ @ 37¢ the range on prime quality. Exporters manifest some interest, but are taking no extensive quantities.

Menhaden Oil.—All of last year's make of crude has been distributed. New is coming forward in moderate quantities only, and finds outlet at 24¢ @ 25¢. The manufactured products are rather dearer, and an advance of 1¢ @ 2¢ on last week's prices is quoted.

Sperm and Whale Oils.—The position of crude Whale and Sperm Oils is strong. There is now little or no stock of the former in first hands. The demand for the manufactured products is fairly active and prices are stronger, with no change on Sperm, but 1¢ @ 2¢ advance quoted on Whale.

Lard Oil.—There has been no change in prices for this lubricant. The market is steady, with about the usual demand from home buyers and some little export business passing.

Spirits of Turpentine.—Stocks in first hands here have increased to 1500 barrels, but a fairly active local demand, together with stronger reports from the primary markets, has served to stiffen prices. Several hundred barrels were sold at 37¢ @ 37½¢, and subsequently 38¢ was paid for a round lot.

The Brooklyn Self-Locking Sash Fastener.

The Brooklyn Lock Company, 56 and 58 Ainslie street, Brooklyn, N. Y., are introducing an automatic locking sash fastener, as illustrated herewith. Fig. 1

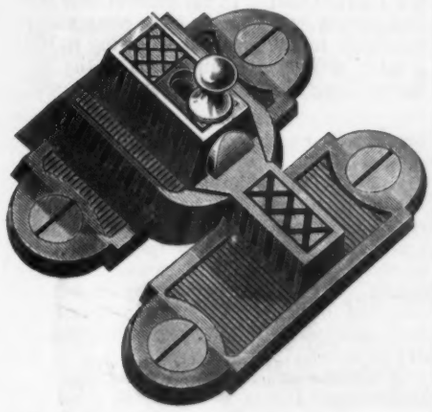


Fig. 1.—Full Size of Sash Fastener.

represents a full sized fastener and Fig. 2 shows a sectional view as applied to the window. It is referred to as being positive in its action, as the latch actuated by a spring returns to its place when the window is closed and the lug on the

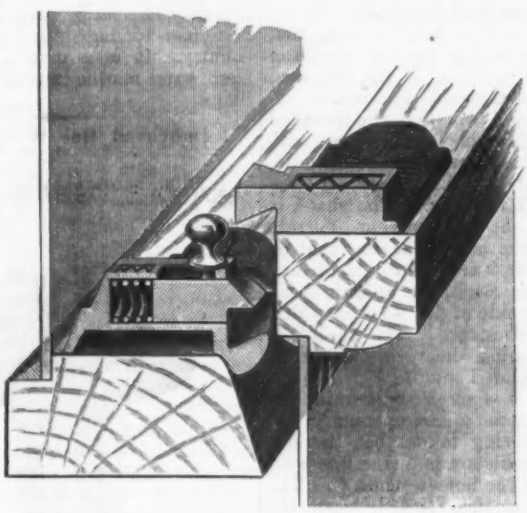


Fig. 2.—Sectional View of Sash Fastener in Use.

lower sash settles into the opening on the upper sash. The point is made that the fastener draws the sash together and prevents rattle, as the result of the beveled construction of the latch, which can be seen by referring to Fig. 2. The outer edge of the lug on the lower sash is oval, the design of which is that the lug shall drop into the latch fastening, even if it does not strike directly in the center of the latch piece. The fastener is alluded to as being positively burglar proof, it being impossible to throw back the catch from the outside. We are advised that all parts of the fastener have been tested as to their strength and durability.

Drip Cup Strainer.

The Hamblin & Russell Mfg. Company, Worcester, Mass., are introducing a drip cup strainer, as illustrated herewith. It

Drip Cup Strainer.

consists of an adjustable drip cup fastened under a strainer, and so arranged that when the pot is put on the table after pouring, the cup receives the drip instead of allowing it to go on the table cloth. The whole arrangement of strainer and drip cup is fastened by spring wire, engaging the interior of the nozzle of the pot.

Merwin, Hulbert & Co.'s Junior Rifle.

Merwin, Hulbert & Co., 26 West Twenty-third street, New York City, are introducing what they term their Junior Rifle, as illustrated herewith. This they refer to as being made to fill the want of an American made rifle, to take the place of the better grade of Flobert's. The barrel is held in place by the same style of pin as is used in their rifles, with interchangeable shot barrels, so that it may be quickly taken apart to pack without the aid of a tool, being reduced to the length of the barrel, which is made both 20 and 22 inches. They describe the rifle as being 22 caliber, carefully rifled barrel, rebounding lock, walnut stock, case hardened frame and mountings; weight, 4½ pounds. The rifles are neatly packed, one in a box. They make the point that the accuracy of the shooting is guaranteed to be equal to any other rifle, and that 22 short and long cartridges, as well as bullet breech caps, can be used in the same rifle.

Merwin, Hulbert & Co.'s Junior Rifle.

Wire Picture Cord Reel.

Tale & Co., of Malden, Mass., are introducing a patent reel on which they wind

Fig. 1.—Wire Picture Cord Reel.

their braided wire picture cord. It is shown in Fig. 1; also a reel box for holding their reels, as illustrated in Fig. 2. They refer to the undesirable custom of

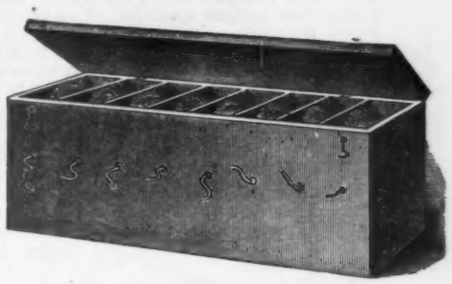
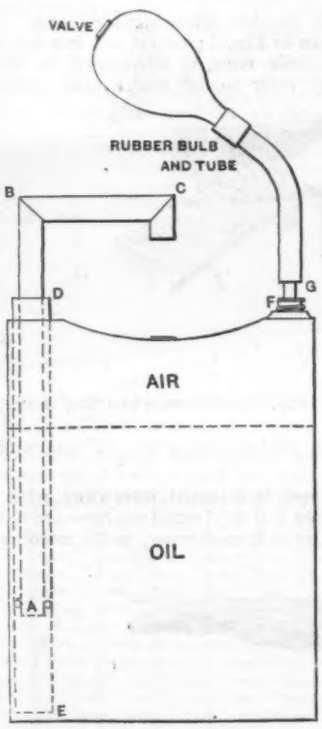


Fig. 2.—Picture Cord Reel Box.

putting picture cord in coils, which causes it to snarl and tangle when being unwound. The reel, it is stated, does away with this trouble and is of equal convenience to both retailer or housekeeper, as the unrolling of the picture cord is under control. The reel box is alluded to as being desirable for the retailer, as he can measure off any any desired quantity of picture cord, with the assurance that the remainder of the piece will be in desirable condition for sale.

Can for Kerosene.

A correspondent in Waynesburg, Ohio, writes: I have been experimenting to some extent with compressed air, and have applied the principle to cans for kerosene. It works like a charm, the oil being raised with greater ease than by the use of the best pump. I also find, upon investigation, that the principle has been in use so long in connection with the syringe and other goods, that it has become public property. The principle can be applied to oil cans in two ways, by means of a syringe or compression bulb as shown in the accompanying sketch, or by attaching a rubber tube and blowing into it. The latter plan is very simple; works equally well, with no chance of anything to get out of order. Referring to the engraving, A B C is the pipe for filling lamps that slides in the pipe D E, being packed at A so as to make a tight joint. The rubber pipe is attached to the tube G, which is soldered to the screw top F. The screw top F can be removed when the can is to be filled.

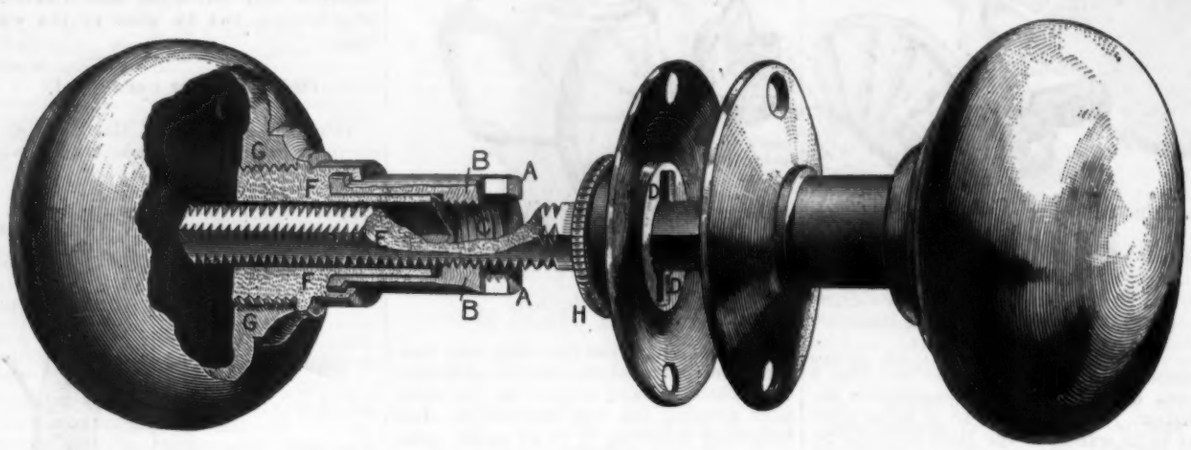


Can for Kerosene.

The steamer Majestic arrived here on the 4th inst. from Queenstown in the fast time of six days four hours and eight minutes. This eclipses the best performance of the City of New York and the Teutonic. The City of Paris still holds the record, with the Etruria next, and the Majestic third.

H. & D. Patent Improved Screwless Spindle.

Hopkins & Dickinson Mfg. Company, New York and Brooklyn, N. Y., are introducing to the trade the H. & D. Improved Screwless Spindle, patented July 30, 1889, as illustrated herewith. By referring to the cut it will be seen that A A are pintles or lugs on the revolving sleeve B B, of which C is the threaded part. D D are recesses in the rose to engage the pintles A A. E is the threaded spindle, F F the knob shank proper, with a square opening to receive the spindle. G the head of the knob, and H the knurled edge on the rose. The shank is screwed into the opposite or outside knob in the same manner as shown at G, and the spindle is riveted to the shank. In applying the knob, the spindle is inserted from the side of the door on which the riveted knob is used. The knob G is put on by engaging the revolving sleeve B with the threaded spindle E. The revolving sleeve B is screwed up until the spindle E enters the square opening in the shank F, care being taken that the flat sides of the spindle are in a true line with the flat sides of the hole in shank F. The outside knob is then pulled, until the pintles A become engaged in the recesses D of the revolving rose. The revolving rose is then turned until the knobs are drawn to the required adjustment. The roses are then screwed to the door and the knobs are ready for use. These knobs are being made of solid bronze, brass or other metal. The advantages, as referred to, are an adjustment to any thickness without the use of washers or knob screws; that the knobs cannot get loose from the shank, as they are screwed into the knobs, as shown at G; that the outside knob cannot be stolen, and there being no holes drilled in the spindle for screws, it is stronger than the ordinary kind and less liable to break.

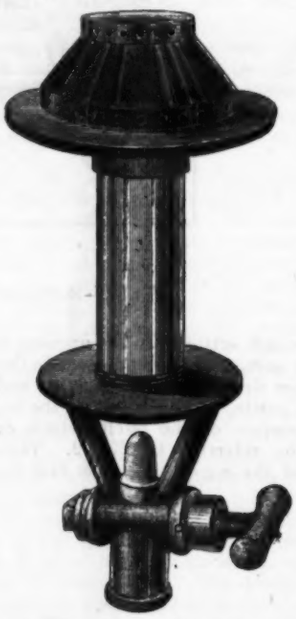


H. & D. Patent Improved Screwless Spindle.

Lake Shipbuilders Ahead.—Inspector Oldham, of the Inland Lloyds', has issued a new supplement to his statistical chart of the merchant marine of the United States which shows that the tonnage built on the great lakes in 1889 aggregated 107,080.30 tons, by official measurement, against 93,912.94 tons on the Atlantic and Gulf coasts and 17,939.43 tons on the Pacific Coast. In the number of vessels the comparison is very different, 225 having been built on the lakes, while 112 were constructed on the Pacific Coast and no less than 657 in ship yards on the Alantic and Gulf of Mexico. The lake tonnage built last year was not only, therefore, the builders claim, almost exactly equal to that of all the ocean coasts, but it represented a far better class of vessels, on the average. Eight of the steamships built in Cleveland exceeded the aggregate tonnage of the 112 vessels constructed on the Pacific Coast. In the current year the comparison will scarcely be so remarkably favorable to the great lakes, owing to the greater activity in ship yards on the Atlantic Coast, but these inland seas will probably furnish at least one-half of the first-class tonnage put afloat in the entire country. It is a great showing for the fresh water marine interests of the United States.

Improved Gas Stove Burner.

In the accompanying illustration we show a general view of a burner designed for use in connection with gas stoves,



Improved Gas Stove Burner.

which has recently been placed upon the market by N. Forshaw, of 1417 and 1419 Franklin avenue, St. Louis, Mo. The manufacturer calls attention to the fact that this burner is so constructed that it is easily operated; that it is economical as well as odorless in operation, and that it may be readily applied. He also mentions the fact that it may be attached to an old frame of a gasoline stove, at small expense, thus producing a very serviceable gas stove. The burner is said to be carefully constructed in all its parts and to give satisfaction wherever used.

The Little Triumph Wheel Scraper.

The American Steel Scraper Company, Sidney, Ohio, are putting on the market a wheel road scraper called the Little Triumph, as illustrated herewith. This scraper is especially recommended where the teams are light and where dirt has to be hauled up grade. The point is made that one man drives both the team and operates the scraper. It is alluded to as having no malleable or cast iron used in its construction, and that all of the material is of the best quality. It is referred to as carrying the load in such a manner that no end gate is needed, and it is claimed that it will get to the dump with more than twice as much dirt as could be carried with a drag scraper. The capacity, as stated, is 10 cubic feet.

The Little Triumph Wheel Scraper.

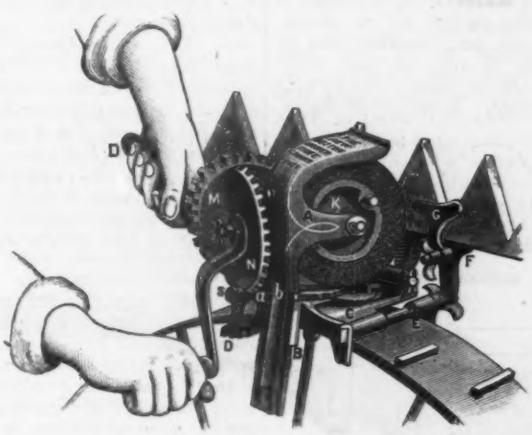
The New 1890 Nail Puller.

The Chantrell Tool Company, Reading, Pa., for whom John H. Graham & Co., 113 Chambers street, are general agents, are introducing the New 1890 Nail Puller, as herewith illustrated. The nail puller is referred to as being drop forged from the best steel for the purpose and as finely polished and nickeled. The point is made that each puller is thoroughly inspected and tested three times before leaving the factory. Four facts are alluded to in connection with the working of the puller—no washing of hands, pulls nails straight, pulls any kind of nail and pulls the nail every time. The weight is stated as 4½ pounds and length 18 inches.

The New 1890 Nail Puller.

The U. S. Mower Knife Grinder.

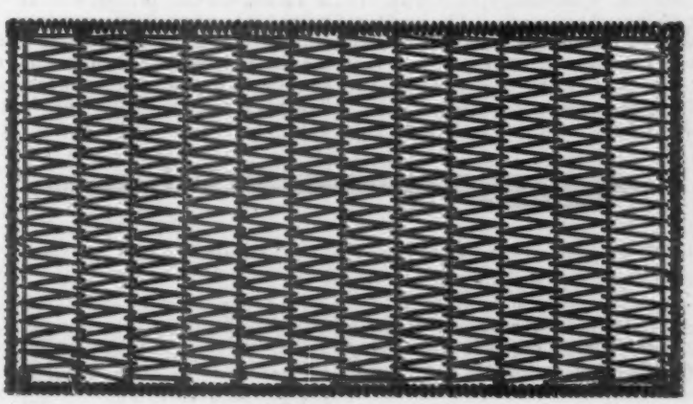
The Higganum Mfg. Corporation, Higganum, Conn., and 189 and 191 Water street, New York, are offering the trade the U. S. Mower Knife Grinder, as illustrated herewith. The machine has corundum grinding wheel, with a large hole in the center, water tight. In using, this hole is filled with water through a small hole in one of the flanges, which is then plugged up. By turning rapidly, the water is driven through the pores of the wheel by centrifugal force, completely wetting its grinding surface. The wheel is raised by the left hand while grinding up the edge of the section. The section crossing the entire surface of the stone, in grinding this, is intended to keep the face of the stone square. The stone is readily adjusted to the angle of the sections by being turned on a pivot just in front of *d*. We are advised that the grinding wheel is so geared that one turn of the crank rotates the wheel nine times; also that it is adapted for sharpening any section. This grinder will be recognized as an interesting addition to the company's line of grinding machines.



The U. S. Mower Knife Grinder.

The Daisy Wire Mat.

We herewith illustrate a wire mat of new design which has been brought out by George Kelly & Co., 211 and 213 Randolph street, Chicago. This mat is made upon the same principle as the wire belting manufactured by the same firm. The foundation of the mat is a flat, spiral coil of wire, running its full width. These spirals are turned out flat by machinery specially invented for that purpose, so that they have a permanent set and are perfectly uniform in shape and size. The coils are interlocked, and cross pieces of wire pass through them to unite the whole into a solid fabric as though woven. An ornamental coiled wire binding is attached to the edge of the mat to stiffen it as well as to perfect its finish. These mats are unusually strong to resist wear. They are made of any metal desired, and the coils are also made of thin strips of metal when that is preferred to wire.



The Daisy Wire Mat.

Covert's Safety Pole Tip.

The E. Covert Mfg. Company, Farmer Village, N. Y., are introducing a safety pole tip, as illustrated herewith, and has for its object the prevention of accidents should the pole get loose from the neck-yoke in driving a double team. We are

Covert's Safety Pole Tip

advised that the hook is held in place by a spring, which cannot get out of order, and the point is made that the neck-yoke cannot leave the pole until the hook is thrown back. The improvement is alluded to as being an ornament to the tip, which will not fail to hold the neck yoke in place should all the traces become detached. These pole tips are finished in Japan, XC silver, nickel, oroide and gold plate.

Rifles With Interchangeable Shot Barrels.

Merwin, Hulbert & Co., 26 West Twenty-third street, New York City, are manufacturing rifles with interchangeable shot barrels, as herewith illustrated. They allude to these as having at last succeeded in perfecting a system whereby their rifles can be made with interchangeable shot barrels, 16 gauge. They announce that the guns are ready for delivery and are made as follows: Rifles, 22 and 32 caliber, rim fire; 32, 38 and 44, W. C. F.; 32–40, center fire; 38–55, central fire; 26-inch barrels, interchangeable with 16 gauge 30-inch shot barrels. They refer to the fact that the change from rifle to shot gun can be made in 30 seconds, no tool being required to make the change. The barrel is held in place by a screw pin, having a lever head, as shown in Fig. 1. This

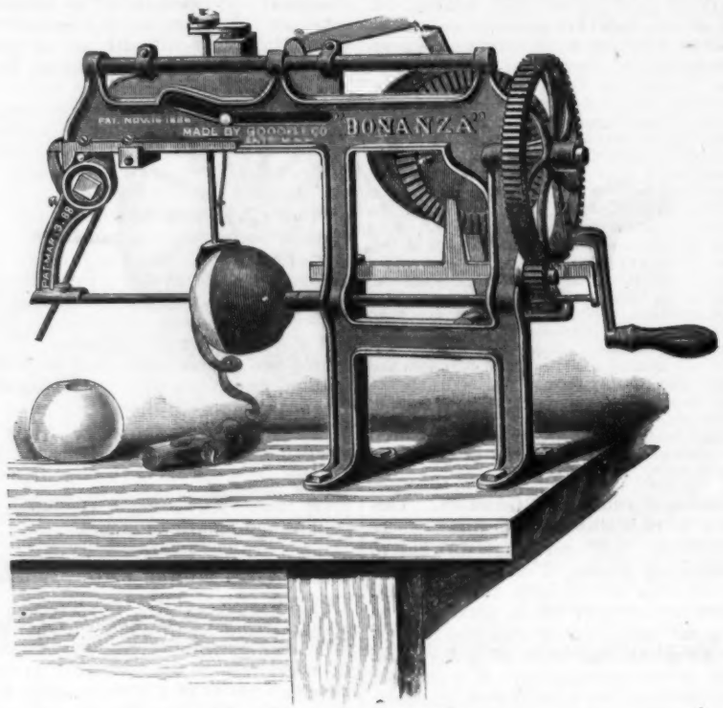
Fig. 1.—Rifle With Interchangeable Shot Barrels.

Fig. 2.—Extra Shot Barrel.

pin is tapered near the head, the object being to take up any wear in the barrel. The hammer is rebounding in action, and the lever ejects the exploded cartridge or shell. To accommodate either rim or central fire cartridges, there is a link, attaching the breech block to the lever, in which there are two holes for such adjustment. There is a set screw immediately above the trigger to adjust it for a heavy or a light pull. A light pull would be required for target practice with the rifle, while a heavier pull would be more desirable when using the shot gun. The interchangeable shot gun barrel is represented in Fig. 2.

The Bonanza Parer and Corer.

The Goodell Company, Antrim, N. H., are introducing the Bonanza Parer and Corer, as illustrated herewith. The working of the machine is described as follows: When the fork is empty and ready to receive an apple, the paring knife and coring knife are thrown back and away from the fork, leaving ample space to put on the apple. After this is done, as the machine is turned, these knives pass down the apple, the paring knife passing around it taking off the paring, and the coring knife being pressed through the center, cutting the core. As it moves back again it takes the apple off the core, and the core is pushed off by an automatic arrangement. The point is made that the machine can be used to pare without coring if desired



The Bonanza Parer and Corer.

The Bonanza Parer and Corer is made especially for the evaporating trade, bakery and hotel purposes. The machine is referred to as being large and strong, but weighing about 20 pounds. It is alluded to as a successful three-turn machine, and are advised it runs smoothly and with the expenditure of comparatively little power.

Two of the Central American republics, Costa Rica and Nicauragua, hesitate about joining the proposed provisional union.

VIRGINIA IRON NOTES.

It is stated that machine shops and round houses are to be built by the Norfolk and Western Railroad Company at Nerton.

All of the Roanoke manufacturing plants seem to be prospering, and there is hardly a concern that does not in some manner contemplate enlarging its facilities. The Roanoke Rolling Mill Company are in particularly fine spirits about their promising trade outlook. Their mill is running steadily at its fullest capacity, and in one week recently orders were booked for 1000 tons for future delivery. Two new furnaces are being added to their plant. A force of men are at work hoisting the stocks and as soon as possible they will begin operations. A carload of additional new machinery was received a few days ago and more is in transit.

The capital stock of the Roanoke Iron Company has been increased from $300,000 to $500,000, and plate and puddle mills will be built for which the contracts have already been awarded.

Work on the McCarthy steel plant will begin this week at Salem. Chief Engineer Alexander, of Washington, is now busy laying off the site of the plant and making other necessary preparations.

The foundations for the Basic City Lock Work, at Basic City, are about completed, and work on the superstructure will go forward rapidly. This plant has a frontage of 375 feet by 250 deep.

The Clifton Forge Mining and Development Company are said to be negotiating with turbine water wheel manufacturers with a view of removing the plant to Clifton Forge.

Six thousand acres of mineral land have been bought near Harrisonburg by the Harrisonburg Mineral and Development Company, for which they are said to have paid $40,000.

Capitalists from Norfolk are reported to have purchased $25,000 worth of mineral land near Midvale, which they intend developing.

Work on the foundation of the new furnace at Basic City is progressing as rapidly as the nature of the work will admit. Work on the furnace at Buena Vista is going on finely, and it will go into blast by September, if not on an

earlier date. The sites for the two furnaces to be built at Glasgow by the Glenwood Furnace Company, have been chosen and work will be commenced early this month.

The buildings for the Valley Iron Works, the plant to be removed from Williamsport, Pa., to Lynchburg, will be erected as soon as the architect finishes the plans of the new buildings.

A company has been organized to purchase valuable iron ore properties near Narrows. It is stated that they have secured an option on 1300 acres at $50,000, and if purchased, a town will be built.

The Washington, Ohio and Western Railroad, which has its present terminus at Round Hill, in London County, it is urged, should be extended to and beyond the Blue Ridge Mountains and through the charming valley of the Shenandoah. With this extension built, as it will be in all probability, an abundance of iron ore in the river hills will be opened up to development. It has been authoritatively stated during the past week that, in the event of this railroad being extended, as mentioned, a wealthy iron manufacturer from a Northern State will guarantee to erect within a year, at a point near Alexandria, a plant costing not less than $250,000 for the purpose of rolling building beams alone. The same party expressed the opinion that the blast furnaces and rolling mills for other branches of iron work would inevitably follow, and he said further that the product of these mills could be placed in Philadelphia, New York, or any of the Atlantic seaboard cities cheaper than it could be brought even from the interior of Pennsylvania by rail. This will be readily appreciated when it is considered the short distance to be covered in obtaining the iron ore, coal and limestone for use, at a shipping point with unsurpassed facilities, and where any ship that floats may ride in safety.

Washington News.

(*From Our Regular Correspondent.*)

WASHINGTON, D. C., June 10, 1890.

The Senate Committee on Finance are making very satisfactory progress in the consideration of the House Tariff bill. They have reached the metal schedule and have gone over its provisions in a preliminary way, subject to modifications, when the aggregate effect of the operations of the bill as amended can be estimated. The committee are not following throughout the high protective principle of the House bill, although they are adhering to the policy of fostering and guarding the interests of home industry.

The worst cut has been made on steel rails, which have been reduced from six-tenths to five-tenths, or from $13.44 to $11.20. The committee have also made a slight reduction on steel blooms and iron ore, the object of which, it is claimed, is to establish a relation in the duty on these articles to that proposed on steel rails. Structural iron and other classes are concurred in at the house rates. The reduction on steel rails will be likely to bring out considerable protest from the steel rail manufacturers and the other branches of industry affected, and may lead to a compromise between the House bill rate and that proposed by the Senate Committee. The members of the latter, however, are not disposed to yield, and it is doubtful whether the House Conference Committee on the Tariff bill when reached, finding this the fact, will be very urgent to sustain its rate. It will be remembered that Chairman McKinley and Colonel Bayne had great difficulty in uniting the Republicans on the rates finally established. Mr. Burrows and several others were in favor of going down as low as $12, $10 or $8 on the basis of information which they had. The steel rail question in the tariff promises to become decidedly interesting before the controversy is settled.

The battle ships, cruisers and gunboats already authorized by Congress, and still in the hands of contractors, are rapidly nearing completion. The American Navy, hitherto the laughing stock of our our own people and of the maritime powers of the world, is fast picking up. Congress will either have to authorize the construction of additional vessels or the present list will be disposed of and work will be at an end.

Bids for over $5,000,000 worth of new naval vessels were opened at the Navy Department on Tuesday, at noon. The largest of these vessels, in fact the largest vessel ever designed for the United States Navy, is known officially as the armored cruiser No. 2 (the Maine being No. 1), and popularly as the 8100-ton vessel. She belongs to the class of swift cruisers, and the armor will be about 4 inches thick, and the curved protective deck 6 inches thick. She will be armed with six 8-inch and twelve 4-inch breech-loading rifles, is to develop 16,000 indicated horse-power and a speed of 20 knots. Her dimensions are: Length, 380 feet; extreme breadth, 64 feet 2½ inches; depth in hold, 41 feet 3 inches. The other large vessel is designated as "Cruiser No. 6," and is to have a displacement of 5,500 tons. She has no armor, but is provided with a protective deck 4¼ inches thick. She is to make 20 knots an hour, with 13,500 horse-power. This vessel is to be about the same type as the Baltimore, Philadelphia, Newark, and San Francisco, except that her tonnage is over a thousand greater than any of them. Her dimensions are: Length, 330 feet; extreme breadth, 53 feet; depth, 33 feet. The third vessel is the practice cruiser of 800 tons, a miniature man-of-war for the training of the cadets at the Naval Academy. The appropriation limits for the three vessels are: Armored cruiser, $3,500,000; protected cruiser, $1,800,000; practice ship, $260,000. The bids for the armored cruiser No. 2 were as follows: For the vessel according to the plans and specifications prepared by the Navy Department, the Union Iron Works, of San Francisco, $3,100,000; William Cramp & Sons, of Philadelphia, $3,150,000; the Risdon Iron and Locomotive Works, of San Francisco, $3,450,000. The Union Iron Works and Cramp & Sons also submitted bids for this vessel according to their own plans and specifications. The former's bid was $3,000,000 and the latter's $2,985,000. There were but two bids for the protective cruiser No. 6, each from the Union Iron Works, of San Francisco. They propose to construct the vessel according to the department's plans and specifications for $1,796,000, and according to their own plans and specifications for $1,760,000. Two bids only were received for the practice vessel—F. W. Wheeler, of West Bay City, Mich., $245,000; Samuel L Moore & Co., of Elizabethport, N. J., $250,000. These were both in accordance with the department's plans. There will be no awards for several weeks yet.

The present Congress will do something in the way of adding to the new navy. If not done in the shape of a fleet of mighty battle ships, they will make an equal expenditure in a greater number of cruisers and other types of fleet war ships. The Government demand for steel and shipbuilding, skill and labor is not likely to flag through any indifference on the part of the Fifty-first Congress.

The Wolf and Davidson Dry Dock Company, of Milwaukee, have contracted to build for Thomas Davidson a steamer of even larger dimensions than the Fred Pabst, and a counterpart of that steamer in general construction. Work has already been begun upon the model, and it will not be long before the keel is laid, but the completion of the steamer will not be hurried, as the contract does not require her to be ready for sea before May 1, 1891. The dimensions of the new steamer will be as follows: Length of keel, 300 feet; length over all, 318 feet; molded depth, 24 feet: beam tapering from 42 feet forward to 40 feet aft; capacity on present stage of water, 2900 tons of ore.

The President has just approved the Customs Administrative act, and it is expected that he will send in to the Senate the nominations of the nine general appraisers of merchandise within a few days.

The latest reports of labor societies in England show that there is a falling off in the number of men employed, chiefly in the shipbuilding trade and the industries depending thereon.

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CURRENT HARDWARE PRICES.

JUNE 11, 1890.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Adjusters, Blind.

Domestic ..... ₩ doz $3.00, 33⅓%
Excelsior ..... ₩ doz $10.00 ..... 50&10&2%
Washburn's Self-Locking ..... 20&20&10%

Ammunition.—

Caps, Percussion, ₩ 1000—
Hicks & Goldmark's and Union Metallic Cartridge Co.
F. L. Waterproof, 1-10's ..... 34@35¢
E. B. Trimmed Edge, 1-10's ..... 46@48¢
E. B. Grnd. Edge, Cent. Fire, 1-10's ..... 46@47¢
Musket Waterproof, 1-10's ..... 50¢
G. D. ..... 28¢
S. B. Genuine Imported ..... 45¢
Eley's E. B. ..... 54¢ @ 55¢
Eley's D Waterproof, Central Fire $1.00

Cartridges—
Rim Fire Cartridges ..... 50&5&2 %
Rim Fire Military ..... 15&2 %
Cent. Fire, Pistol and Rifle ..... 25&5&2 %
Cent. Fire, Military and Sporting ..... 15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges, 22 cal., $1.75 ..... 2 %
Blank Cartridges, 32 cal., $3.50 ..... 2 %
Primed Shells and Bullets ..... 15&5&2 %
B. B. Caps, Round Ball, $1.75 ..... 2 %
B. B. Caps, Con. Ball, Swgd., $2.00 ..... 2%

Primers—
Berdan Primers, $1.00 ..... 2%
B. L. Caps (for Sturtevant Shells) $1.00 ..... 2%
All other Primers, $1.20 ..... 2%

Shells—
First quality, 4, 8, 10 and 12 gauge ..... 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list) ..... 30&10&2%
Star, Club, Rival and Climax brands, ... 33⅓&10&2%
Setbold's Comb. Shot Shells ..... 15&2%
I X L, 10 and 12 guage ..... 40&5&2%
"Special," 16 gauge ..... 30&10&5&2%
"Special," 10 and 12 gauge ..... 40&10&2%
Fowler's Pat. $3.25
Brass Shot Shells, 1st quality ..... 60&2%
Brass Shot Shells, Club, Rival, Climax ..... 65&2%

Shells Loaded—
Standard List ..... 40&10&10&5%

Wads—Price per M.
U.M.C.&W. R. A.—B. E., 11 up ... 68¢ } Dis. 30&3
U.M.C.&W. R. A.—B. E., 9&10 ... 82¢ }
U.M.C.&W. R. A.—B. E., 8 ..... 96¢ }
U.M.C.&W.R.A.—R. E., 7 ..... $1.10 }
U.M.C.&W. R. A.—P. E., 11 up.. 1.15 }
U.M.C.&W. R. A.—P. E., 9&10.. 1.50 }
U.M.C.&W. R. A.—P. E., 8 ..... 1.70 }
U.M.C.&W.R.A.—P. E., 7 ..... 1.80 }
Eley's B. E., 11 up. $1.75
Eley's P. E., 11@10 ..... 2.80

Anvils.—

Eagle Anvils, ₩ ℔ 10¢ ..... 15@15&5%
Peter Wright's ..... 10½¢
Armitage's Mouse Hole ..... 9½¢
Armitage's Mouse Hole, Extra. 11½@11¾¢
Trenton ..... 9½@10¢
Wilkinson's ..... 9½@10¢
J. & Riley Carr, Pat. Solid ..... 11@11½¢
Moore & Barnes Mfg. Co 33⅓%

Anvil Vise and Drill—
Millers Falls Co., $18.00 ..... 20%
Cheney Anvil and Vise 25%
Allen Anvil and Vise, $3.00 ..... 40&10%
Star ..... 45&5 %

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Douglass Mfg. Co. } 70@70&
Wm. A. Ives & Co. } 10%
Humphreysville Mfg. Co. }
French, Swift & Co. (F. H. Beecher, P. S. & W. Co. }
Rockford Bit Company }
Cook's, Douglass Mfg. Co ..... 55 %
Cook's, N. H. Copper Co. 50&10@50&10&5%
Ives' Circular Lip 60%
Patent Solid Head 30%
C. E. Jenning & Co., No. 10, extension lip 40%
C. E. Jennings & Co., No. 30 ..... 60%
C. E. Jennings & Co., Auger Bits, ₩ set, 32½ quarters, No. 5, $5; No. 30, $3.50. 20%
Lewis' Patent Single Twist 45%
Russell Jennings' Augers and Bits. 25&10%
Imitation Jennings' Bits ..... 60@60&5%
Snell's Jennings Pattern 60%
Pugh's Black 20%
Rockford, Jenning's Pattern 60%
Car Bits ..... 60@60&10%
Car Bits, P. S. & W. Co ..... 60&10%
Snell's Car Bits 60%
L Hommodieu Car Bits ..... 15&10%
Forstner Pat. Auger Bits 10%
Cincinnati Bell-Hangers' Bits 30%

Bit Stock Drills—
Morse Twist Drills ..... 50&10&5%
Standard ..... 50&10&5%
Cleveland ..... 50&10&5%
Syracuse, for metal ..... 50&10%
Syracuse, for wood (wood list) 30&50&5%
Williams' or Holt's, for metal. 50&10&10%
Williams' or Holt's, for wood.. ..40&10%
Cincinnati, for wood ..... 30&5%
Cincinnati, for metal ..... 40&10%

Expansive Bits—
Clarks' small, $18; large, $26 ... 35@35&5%
Ives' No. 4, ₩ doz $60 ..... 40%
Swan's 40%
Steer's, No. 1, $26; No. 2, $22 ..... 35%
Stearns' No. 2, $48 ..... 20%

Gimlet Bits—
Common ..... ₩ gross $2.75@$3.25
Diamond ..... ₩ doz $1.10 ..... 25&10%
Bee ..... 25@25&5%
Double Cut Shepardson's ..... 45@45&10%
Double Cut, Ct. Valley Mfg. Co ... 30&10%
Double Cut, Hartwell's, ₩ gro $5.25
Double Cut, Douglass' ..... 40&10%
Double Cut, Ives' ..... 60@60&10%

Hollow Augers—
Ives } 33⅓@
French, Swift & Co. } 33⅓&10%
Douglass' }
Bonney's Adjustable, ₩ doz $48 ... 40&10%
Stearns' ..... 20&10%
Ives' Expansive, each $4.50 ..... 50&5%
Universal Expansive, each $4.50 ..... 20%
Wood's ..... 25@25&10%
Cincinnati Adjustable ..... 30@30&5%
Cincinnati Standard ..... 25&10%

Ship Augers and Bits—
L'Hommedieu's ..... 15&10@15&10&5%
Watrous' ..... 15&10@15&10&10%
Snell's ..... 15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits. 15&10@15&10@5%

Awl Hafts—See Hafts, Awl.

Awls, Brad Sets, &c—

Awls, Sewing, Common ₩ gr $1.70. 35%
Awls, Should. Peg, ₩ gr $2.45, 40@40&10%
Awls, Pat. Peg ... ₩ gr 63¢ ... 40@40&10%
Awls, Shouldered Brad .. 2.70 ₩ gr 35%
Awls, Handled Brad .. $7.50 ₩ gr 45%
Awls, Handled Scratch ₩ gr, $7.50. 35&10%
Awls, Socket Scratch, ₩ doz, $1.50. 25@30%

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

	Plain.	Beveled.
First quality	$8.00	$8.50
Others	7.50	8.0

Note.—Jobbers often sell at lower prices than the above.

Axle Grease—See Grease, Axle.

Axes—

No. 1 4¼@5¢, No. 2 5½@6¼¢ } 3 % cash
Nos. 7 to 14 ..... 55&5% }
Nos. 15 to 18 ..... 47½% }
Nos. 19 to 22 ..... 70% }
National Tubular Self-Oiling: Standard Farm (1 to 5) and Special Farm (A1 to A5):
Less than 10 sets 33⅓%
Over 10 sets ..... 33⅓&5%

Bag Holders.—See Holders, Bag.

Balances—

Spring Balances 40%

No.	2000	20	30
Chatillon, ₩ doz	$0.80	0.95	1.75 net

Chatillon Straight Balances 40%
Chatillon Circular Balances ..... 50&10%

Bars.

Crow—
Cast Steel ..... ₩ ℔ 4¼¢
Iron, Steel Points ..... ₩ ℔ 3¾¢

Basins, Wash—

Standard Fiberware, No. 1, 10¼-inch, $2; 12-inch, $2.25; 13½-inch, $2,75; 15-inch, $3.25.

Beams, Scale—

Scale Beams, List Jan. 12, '82 ... 50&10@50&10&5%
Chatillon's No. 1 ..... 40%
Chatillon's No. 2 ..... 50%
Custer's ..... 33⅓&5%

Beaters, Egg, &c—

Keystone, P.D.&C., Each, No. 1, $1; No. 2, $2 ..... 20 %
Dover ..... ₩ doz $1.50
National, ₩ doz $4.50 ..... 33⅓%
Family (T. & S. Mfg. Co.), ₩ gro $17.00@$18.00
Duplex (Standard Co.) ..... ₩ doz $1.25
Rival (Standard Co.) ..... ₩ doz $1.00
Duplex Extra Heavy (Standard Co.)... ₩ doz $3.50
Triumph (T. & S. Mfg. Co.), ₩ gro $10.50@$11.50
Advance, No. 1 ..... ₩ gro $10.50
Advance, No. 2 ..... ₩ gro $10.00
Bryant's ..... ₩ gro $14.00
Ayres' Spiral ..... ₩ gro $5.00
Double (H. & R. Mfg. Co) ..... ₩ gro $16.20
Easy (H. & R. Mfg. Co.) ..... ₩ gro $14.00
Triple (H. & R. Mfg. Co.) ..... ₩ gro $16.20
Spiral (H. & R. Mfg. Co.) ..... ₩ gro $4.50
Paine, Diehl & Co.'s ..... ₩ gro $24.00

Bells—

Cow—
Common Wrought ..... 60&10%
Western ..... 20&10%
Western, Sargent's list ..... 70&10%
Kentucky, "Star" ..... 20&10%
Kentucky, Sargent's list ..... 70&10%
Dodge, Genuine Kentucky ..... 70@70&10%
Texas Star ..... 50&10@50&10&5%
Call ..... 40@40&5%
Farm Bells ..... ₩ ℔ 3¢@3½¢
Steel Alloy Church and School Bells .. 40%

Door—
Gong, Abbe's ..... 33⅓&10%
Gong, Yankee ..... 45&10%
Gong, Barton's ..... 40&10@50%
Crank, Taylor's ..... 25&10%
Crank Brooks' ..... 50&10&2%
Crank Cone's 10%
Crank, Connel's ..... 20&10%
Lever, Sargent's ..... 60&10%
Lever, Taylor's Bronzed or Plated ... net
Lever, Taylor's Japanned ..... 25&10%
Lever, R. E. M. Co.'s ..... 50&10&2%
Pull, Brook's ..... 50&10&2%
Pull, Western ..... 25&10%

Electric.
Wollensak's 20%
Bigelow & Dowse 20%
Taylor's 20%

Hand—
Light Brass ..... 75 @ 75&10%
Extra Heavy ..... 65 @ 65&10%
White Metal ..... 60&10&10%
Silver Chime ..... 33⅓&10%
Globe (Cone's Patent) ..... 25&10@35%

Bellows—

Blacksmiths' ..... 60&5@65%
Molders' ..... 40@40&10%
Hand Bellows ..... 40&10@50%

Belting, Rubber—

Common Standard 70%
Standard ..... 60&10&10@70%
Extra ..... 60@60&5%
N. Y. B. & P. Co., Carbon ..... 50&10@60%
N. Y. B. & P. Co., Diamond .... 40&10@50%

Bench Stops—See Stops, Bench.

Benders, Upsetters, Tire.

Stoddard's Lightning Tire Upsetters .. 15%
Detroit Perfected Tire Bender 15%

Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Ordinary Tackle, list May 20, 1889 ... 50&10@60%
Cleveland Block Co., Mal. Iron 50%
Moore's Novelty, Mal. Iron 50%

Bolts—

Carriage, Machine, &c.—
Com. list June 10, '84 ..... 70&12½&2%
Genuine Eagle, list Oct., '84 ... 75&10@80%
Phila. pattern, list Oct. 7, '84 .. 80@80&10%
R.B.&W., old list 70%
Machine, list Jan. 1, 1890 ..... 75&10
Bolt Ends, list Jan. 1, 1890 ..... 75&10

Door and Shutter—
Cast Iron Barrel, Square, &c .. 70@70&10%
Cast Iron Shutter Bolts ..... 70@70&10%
Cast Iron Chain (Sargent's list) ... 65&10%
Ives' Patent Door Bolts 60%
Wrought Barrel ..... 70@70&10%
Wrought Square ..... 70@70&10%
Wr't Shutter, all Iron, Stanley's .. 60&10%
Wr't Shutter, Brass Knob, " .. 40&10%
Wr't Shutter, Sargent's list ..... 60&10%
Wr't Sunk Flush, Sargent's list... 55&10%
Wr't Sunk Flush, Stanley's list... 50&10%
Wr't B.K.Flush, Com'n " ... 55&10%

Stove and Plow—
Stove 60%
Plow ..... 60&5%
R. B. & W., Plow 55%

Tire—
Common, list Feb. 28, '83 ..... 65%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83 ..... 65%
Keystone, Philadel., list Oct. '84 ... 80%
Norway, Phila., list Oct. '84 ..... 75%
American Screw Company:
Norway, Phil., list Oct. 16, '84 ..... 75%
Eagle, Phil., list Oct. 16, '84 ..... 80%
Philadel., list Oct. 16, '84 ..... 80%
Bay State, list Feb. 28, '83 ..... 65%
R.B.&W., Philadel., list Oct. 16, '84 .... 80%

Borers, Tap.

Common and Rind ..... 20&10%
Ive's Tap Borers ..... 33⅓&5%
Enterprise Mfg. Co ..... 20&10@30%
Clark's ..... 33⅓@35%

Borax ..... ₩ ℔ 9½@10½¢

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.

Per ℔ ..... 2½¢

Braces.—

American Bit Brace Co.:
Nos. 10, 12, 20 ..... 60&10%
Nos. 11, 21, 24, 27 ..... 70&10%
Nos. 22, 23, 25 ..... 60&10&5%
Nos. 13, 26, 36, 37 ..... 70&10&5%
Ball Braces, net ..... $1.12 to $1.25¢
Amidon's
Barker's Imp'd Plain ..... 75&10 @80%
Barker's Imp. Nickeled ..... 65&10@70%
Ratchet ..... 75&10@80%
Eclipse Rachet 60%
Globe Jawed ..... 40@40&10%
Corner Brace ..... 40@40&10%
Universal, 8 in., 2.10 ;10 in. $2.25
Buffalo Ball ..... $1.10@$1.15
Barber's,
Nos. 10 to 16 ..... 40%
Nos. 30 to 33 ..... 50%
Nos. 40 to 63 ..... 50&10%
Barker's,
Nos. 8, 10 and 12 ..... 75&10@80%
Plated, Nos. 8, 10 and 12 .... 65&10@70%
Bartholomew's,
Nos. 25, 27 and 30 ..... 50&10@60&5%
Nos. 117, 118, 119 ..... 70@70&5%
Common Ball, American ..... $1.00@$1.10
Fray's Genuine Spofford's .. 50&5&50&10%
Fray's No. 70 to 120, 81 to 123, 207 to 414 ..... 50&10%
Ives' New Haven Novelty ..... 70&70&5%
New Haven Ratchet ..... 60&5@60&10%
Barber Ratchet ..... 60&5@60&10%
Barbers ..... 60&5%
Spofford ..... 60&5@60&10%
Osgood's Ratchet ..... 40&10@50%
P. S. & W. Co., Peck's Patent 60%

Brackets—

Shelf plain, Sargent's list, 55&10@55&10&10%
Shelf, fancy, Sargent s list, 60&10@60&10&10%
Reading, plain ..... 50&10@60&10&5%
Reading, Rosette ..... 60&10@60&10&10%

Bright Wire Goods—See Wire.

Broilers—

Henis' Self-Basting. { Inch 9 10 9x11
Per doz $4.50 5. 6.50

Buckets, Well.

Galvanized—
Hill's ..... ₩ doz, 12 qt, $4.25; 14 qt, $5.25
Iron Clad ..... ₩ doz, 14 qt, $4.25@$4.50
Whiting's Flat Iron Band ..... $4.25@$4.50
Whiting's Wired Top .. ₩ doz $4.00@.4.25

Bull Rings—See Rings, Bull.

Butcher's Cleavers—See Cleavers Butchers'.

Butts—

Brass—
Wrought Brass ..... 75&10@80%
Cast Brass, Tiebout's 50%
Cast Brass, Corbin's, Fast ..... 33⅓&10%
Cast Brass, Loose Joint ..... 33⅓&10%

Cast Iron—
Fast Joint, Narrow ..... 50&10&5@60%
Fast Joint, Broad ..... 50&10@60%
Loose Joint } .70&5@
Loose Joint, Japanned } 70&10%
Loose Joint, Jap. with Acorns } .70&5@
Parliament Butts } 70&10%
Mayer's Hinges }
Loose Pin, Acorns }
Loose Pin, Acorns, Japanned }
Loose Pin, Acorns, Japanned, Plated Tips }

Wrought Steel—
Fast Joint, Narrow } .70&5@
Fast Joint, Lt. Narrow } 70&10%
Fast Joint, Broad }
Loose Joint, Broad }
Table Butts, Back Flaps, &c. }
Inside Blind, Regular }
Inside Blind, Light }
Loose Pin }
Bronzed Wrought Butts ..... .50

Calipers—See Compasses.

Calks, Toe—

Gautier ..... ₩ ℔ 5½¢@6¢
Dewicks (Burke) ..... ₩ ℔ 5½¢@6¢

Can Openers—See Openers, Ca .

Cards—

Horse & Curry ..... 10&10&10&10%
Cotton ..... 10&10&10%
Wool ..... 10&10&10%

Carpet Stretchers—See Stretchers Carpet.

Carpet Sweepers—See Sweepers Carpet.

Cartridges—See Ammunition.

Casters—

Bed ..... } Brass ... 55@55&10%
Plate ..... } Others .. 60@60&10%
Shallow Socket ..... }
Deep Socket ..... 40&10%
Yale Casters, list May, 1884 ... 30&10@40%
Yale, Gem ..... 60@60&5%
Martin's Patent (Phœnix) ..... 45&10@50%
Payson's Anti-friction ..... 60@60&10%
Giant Truck Casters 30%
Stationary Truck Casters ..... 50&10%
Socket Truck Casters 50%

Cattle Leaders—See Leaders, Cattle.

Chain—

Trace, Wagon and Fancy Chains, List revised April 21, 1890 ..... 50& 10@60%
American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$3.00	3.70	4.80	4.30	3.90	3.75	3.65	3.55

Less than cask lots, add ¼¢@½¢ ₩ ℔.
German Coil, list of June 20, 1887 ..... 50&10&5@60%
German Halter Chain, list of June 20, 1887 ..... 50&10&5@60%
Covert Halter ..... 60&2%
Covert Traces ..... 35@3%
Covert Heel Chain ..... 50&2%
Oneida Halter Chain ..... 60@60&5%
Galvanized Pump Chain ..... ₩ ℔ 5½¢@6¢
Jack Chain, Iron ..... 75&10@80%
Jack Chain, Brass ..... 75@75&10%

Chalk—

White ..... ₩ gr 50¢
Red ..... ₩ gr 70¢
Blue ..... ₩ gr 85¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—

Socket Framing and Firmer.
P. S. & W ..... } ..75 @ 75&10
New Haven ..... }
Witherby ..... }
Mix ..... }
Ohio Tool Co ..... }
Douglass ..... 75@75&5%
Buck Bros 30%
Merrill ..... 60&10@60&10&5%
L. & I. J. White ..... 80@30&5%

Tanged and Miscellaneous.
Tanged Firmers ..... 40&10@50%
Butchers' ..... $4.75@$5.00
Spear & Jackson's ..... $5 to $
Buck Bros 30%
Cold Chisels, ₩ ℔ ..... 15@1 %

Chucks—

Beach Pat.....each, $8.00.....20%
Morse's Adjustable,each, $7.00, 20@20&5%
Oanbury.....each, $6.00, 30@30&5%
Syracuse, Bals Pat.....25%
Skinner's Pat. Drill Chucks.....30%
Skinner's Independent Lathe Chucks.40%
Skinner's Pat. Comb. Chuck.....40%
Union Mfg. Co.,
Victor.....$8.50, 25%
Combination.....40%
Universal.....40%
Independent.....40%

Churns.

Tiffin Union No. 1, 5 gallon...$3.25 each
Tiffin Union No. 2, 7 gallon...$3.75 each
Tiffin Union No. 3, 10 gallon...$4.25 each

Clamps—

R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....30@30&10%
Stearn's Adjustable Cabinet and Corner.....30@30&10%
Cabinet, Sargent's.....60%&10%
Carriage Makers', Sargent's.....70&10%
Carriage Makers', P., S. & W. Co..40&10%
Eberhard Mfg. Co.....40&5&40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenters', Cincinnati.....15%

Cleavers.

Butchers'.
Bradley's.....25@30%
L. & J. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P., S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Clips—

Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16 65&5%
Superior Axle Clips.....65%&5&70%
Norway Spring Bar Clips, 5-16...60&5&5%
Wrought-Iron Felloe Clips.....₩ lb, 5¢
Steel Felloe Clips.....₩ lb, 5¢
Baker Axle Clips.....25%

Cloth and Netting, Wire—See Wire, &c.

Cockeyes.....60%

Cocks, Brass.

Hardware list.....50&2%

Coffee Mills—See Mills, Coffee.

Collars, Dog, &c.

Medford Fancy Goods Co.....40&10%
Embossed, Gilt, Pope & Steven's list 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%
Chapman Mfg. Company.....50&10@60%

Combs, Curry.

Fitch's.....50&10@50&10&10%
Rubber, per doz $10.00.....20%
Perfect.....50%

Compasses, Dividers, &c.—

Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's
Spring Calipers and Dividers.....25&10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools—See Tools, Coopers'.

Cord, Sash—

Common.....₩ lb 10@11¢
Patent, good quality.....₩ lb 13@13½¢
White Cotton Braided, fair...₩ lb 28@29¢
Common Russia Sash.....₩ lb 13½¢
Patent " " .....₩ lb 15¢
Cable Laid Italian Sash.....₩ lb 22@23¢
Indian Cable Laid " ... .₩ lb 13¢
Silver Lake—
A Quality, White, 50¢.....10&10&5%
A Quality, Drab, 55¢.....10&10&5%
B Quality, White, 50¢.....28@.40%
B Quality, Drab, 55¢.....31@33%
C Quality, White (only).....26½@28¢
Sylvan Spring, Extra Braided,White, 34¢
Sylvan Spring, Extra Braided, Drab..30¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....25¢
Samson—
Braided, White Cotton, 50¢...30@30&5%
Braided, Drab Cotton, 55¢....30@30&5%
Braided, Italian Hemp, 55¢...30@30&5%
Braided, Linen, 80¢.....30@30&5%

Corkscrews—See Screws, Cork.

Corn Knives and Cutters—See Knives, Corn.

Crackers, Nut—

Table (H. & R. Mfg. Co.).....40%
Blake's Pattern.....₩ doz $2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles—

Grain.....50&5&₩50&10&2%

Crayons.

White Crayons, ₩ gr, 12¢@12½¢.....10%
D. M. Stewart Mfg. Co., Metal Workers, ₩ gr, $2.50.....25%
M. Stewart Mfg. Co., Rolling Mill, ₩ gr, $2.50.....25%
See also Chalk.

Crow Bars—See Bars, Crow.

Curry Combs—See Combs, Curry.

Curtain Pins—See Pins Curtain.

Cutters—

Meat.
Dixon's ₩ doz.....40&5%
Nos..... 1 2 3 4
$14.00 $17.00 $19.00 $0.00
Woodruff's ₩ doz.....40&5%
Nos..... 100 150
$15.00 $18.00
Hales Pattern ₩ doz.....70@70&5%
Nos..... 11 12 13
$27.00 $33.00 $45.00
American.....30%
Nos..... 1 2 3 4 B 5
Each.....$5 $7 $10 $25 $50 $60
Enterprise.....30%
Nos..... 10 12 22 32 42
Each.....$3 $2.50 $4 $6 $15
Pennsylvania.....40&10%
Nos..... 1 2 3 00
₩ doz....$24.00 $28.00 $36.00 $28.00
Miles' Challenge ₩ doz.....45@45&10%
Nos..... 1 2 3
$22.00 $30.00 $40.00
Home No. 1.....₩ doz, $26.00, 55&10%
Draw Cut, each:
Nos..5 2 6 8
$50 $75 $80 $225.....20@25%
Beef Shavers (Enterprise).....20&10@30%
Little Giant.....50%
Chadborn's Smoked Beef Cutter, ₩ doz $55.00

Tobacco.
Champion.....20&10@30%
Wood Bottom.....₩ doz $5.00@$5.25
All Iron.....₩ doz $4.25
Nashua Lock Co.'s...₩ doz, $18.00 50@55%
Wilson's.....55%
Sargents's.....₩ doz, $24, 55&10%
Acme.....₩ doz $20.00, 40%

Washer.
Smith's Pat.....₩ doz $12.00, 20&10&10%
Johnson's.....₩ doz $11.00, 33⅓%
Penny's ₩ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₩ doz $16.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Cutlery—

Beaver Falls & Booth's.....33⅓%
Wostenholme.....$7.75 to $

Dampers, &c—

Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Diggers, Post Hole, &c.—

Samson Post Hole Digger, ₩ doz $30.00, 25&10%
Fletcher Post Hole Augers, ₩ doz $36, 20%
Eureka Diggers.....₩ doz $16.00@17.00
Leed's.....₩ doz $8.00@9.00
Vaughan's Post Hole Auger, ₩ doz $13.00@14.00
Kohler's Little Giant.....₩ doz. $18.00
Kohler's Hercules.....₩ doz. 15.00
Kohler' New Champion.....₩ doz. $0.00
Schniedler.....₩ doz. $18.00
Ryan's Post Hole Diggers...₩ doz $24.00
Cronk's Post Bars, ₩ doz $60.00, 50&5@50&10%
Gibbs Post Hole Digger, ₩ doz $30.00, 50¢
Imperial, ₩ doz $15.....45%

Dividers—

See Compasses.

Dog Collars—See Collars, Dog, &c.

Door Springs—See Springs, Door.

Drawers.

Money, ₩ doz.....$18@$20

Drawing Knives—See Knives, Drawing.

Drills and Drill Stocks—

Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50,20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's....each $2.50, 25&10&40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll's.....25%
Ratchet, Parker's.....30@20&5
Ratchet, Whitney's.....20&10%
Ratchet, Weston's.....20@25%
Ratchet, Moore's Triple Action...25@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools.....$1.75@$1.85

Twist Drills—
Morse.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%
Cleveland.....50&10&5%
Williams.....50&10&10%
New Process.....50&10&5%

Drill Bits.—See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans-See Pans, Dripping.

Drivers, Screw.

Douglas Mfg. Co.....20@20&10%
Disston's.....40&10%
Disston's Pat. Excelsior.....45&10%
Buck Bros.....30%
Stanley R. & L. Co.'s
Varnished Handles.....65&10%
Black Handles.....60&10%
Sargent & Co.'s
No. 1 Forged Blade.....60&10&10%
Nos. 20, 30 and 60.....65⅓&10&10%
P. S. & W.....70%
Knapp & Cowles No.1.....60&60&70%
No. 1 Extra.....60@60&10
Nos. 00 & 4.....50&5@50&10&5%
Stearns'.....25&10&5%
Gay & Parsons.....35%
Champion.....25&10%
Clark's Pat.....30@33⅓%
Crawford's Adjustable.....30%
Ellrich's Socket and Ratchet..35@35&10%
Allard's Spiral, new list.....25%
Kolb's Common Sense ₩ doz $6.00,25&10%
Syracuse Screw-Driver Bits....30&30&5%
Screw-Driver Pins.....₩ doz. 50@75¢
Screw-Driver Bits, Parr's.....₩ gro $6.25
Fray's Hol. Hdle. Sets. No. 3. $12.00, 25@35&10%
P. D. & Co.'s all Steel.....50%
Cincinnati.....30&10%
Brace Screw Drivers.....25&10%
Buck Bros.' Screw-Driver Bits.....%

Egg Beaters.—See Beaters, Egg.

Egg Poachers.—See Poachers, Egg.

Electric Bell Sets.—See Bells, Electric.

Emery.—No. 4 to No. 54 to Flour, CF

	46 gr.	150 gr.	F. FF.
Kegs, ₩ lb	4½¢	5 ¢	2½¢
½ kegs, ₩ lb	4¾¢	5¼¢	2¾¢
¼ kegs, ₩ lb	5 ¢	5½¢	3 ¢
10-lb cans, 10 in case	6 ¢	6¼¢	5 ¢
10-lb cans, less than 10	10 ¢	10 ¢	7½¢

Enameled and Tinned Ware—See Ware, Hollow.

Escutcheon Pins—See Pins, Escutcheon.

Escutcheons.

Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Fasteners, Blind—

Mackrell's, ₩ doz. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₩ gr..30&10%
Van Sand's Old Pat., $15.00 ₩ gr..55&10%
Washburn's Old Pattern, ₩ gr.....$9.00
Merriman's.....new list
Austin & Eddy No. 2008 ₩ gr.....$9.00
Security Gravity, ₩ gr.....$9.00

Faucets.—

Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Starrett's Pat. Petroleum.....40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring
Enterprise, ₩ doz $50.00.....20&10%
Lane's, ₩ doz $36.00.....25&10%
Victor, ₩ doz $36.00.....25&10%

Felloe Plates—See Plates, Felloe.

Fifth Wheels.—

Derby and Cincinnati.....50&5%
Brewster.....55&5%

Files—

Domestic—
Nicholson Files, Rasps, &c.....60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75% (extra prices on certain sizes)
Other makers, best brands.....60&20%
Fair brands.....60&10&10@70&5%
Second quality.....70&10@75&10%
Nicholson's Horse Rasps....60&10@60& 10&5%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chelsea Horse Rasps, Hand Cut...50&10%

Imported—
Moss & Gamble....List, April 1, 1883, 15%
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%
Turton's.....Turton's list, 20@25%
Greaves' Horse Rasps..American list, 0%

Fixtures.

Grindstone—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%
P., S. & W. Co.....50&10%

Fluting Machines—See Machines, Fluting.

Fluting Scissors—See Scissors, Fluting.

Fodder Squeezers—See Squeezers, Fodder.

Forks—

Hay, Manure, &c., Asso List.....70%
Hay, Manure, &c., Phila. List 60@60&5%
Plated, see Spoons.

Frames—

Saw—
White Vermont.....₩ gro $9.00@10.00
Red, Polished and Varnished.....₩ doz $1.50, 25%

Screen, Window and Door—
Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons..33⅓@ 33⅓&10%
Stearns' Frames and Corners..25@25&10%

Freezers, Ice Cream—

White Mountain.....60@60&5%
Granite State.....65@65&5%
Arctic.....70@70&5%
American.....60%
Buffalo Champion.....65@65&5%
Shepard's Lightning.....65@65&5%
Gem.....65%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60
Peerless and Giant.....60&10
Zero and Pet.....65&10
Boss.....65&10&10
Keystone, P. D. & Co., each, $1.50.....20%

Fruit and Jelly Presses—See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Funnels.

Gersdorff's Perfection, Standard and Globe; Tin, 1 gro., 10 %; 2 to 5 gro., 20 & 5 & 10 gro.....20 %
Copper, 1 to 6 doz., 15 %; 6 to 12 doz., 20 %; over 12 doz.....30 %

Fuse— ₩ 1000 ft
Common Hemp Fuse,for dry ground.$2.70
Common Cotton Fuse,for dry ground 2.85
Single Taped Fuse, for wet ground.. 3.85
Double Taped Fuse, for very wet gr. 4.35
Triple Taped Fuse, for very wet gr.. 5.60
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gates, Molasses—

Stebbin's Pattern.....75@75&10%
Stebbin's Genuine.....60&10&10%
Stebbin's Tinned Ends.....40&10%
Chase's Hard Metal.....50&10%
Bush's.....20%
Lincoln's Pattern.....70@70&10%
Weed's.....20&10%
Boss, ₩ doz:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10.....60&10&10%

Gauges.

Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch. 25&10%
Wire, low list.....10&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....50@50&5%
Wire, Brown & Sharpe's.....10@20%
Wire, P. S. & W. Co.....

Gimlets—

Nail and Spike.....50&10&5%
"Eureka" Gimlets.....40&10%
"Diamond" Gimlets.....₩ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%
"Bee," ₩ gr $12.....25@25&5%

Glue—

Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
Le Page & Co.'s Improved Process. 25@25&5%

Glue Pots—See Pots, Glue.

Grease, Axle.

Fraser's.....Keg ₩ lb 4¢, Pail ₩ lb 5¢
Fraser's, in boxes.....₩ gr $9.50
Dixon's Everlasting, in bxs...₩ doz 1 lb $1.20; 2 lb $2.00
Dixon's Everlasting....10-lb pails, ea. 35¢
Lower grades, special brands, ₩ gr $5.50@$7.00

Grindstones—

Small, at factory.....₩ ton $7.50@$9.00

Grindstone Fixtures—See Fixtures, Grindstone.

Hack Saws—See Saws.

Hafts, Awl.

Sewing, Brass Fer.₩ gr, $3.50.....45&10%
Pat. Sewing, Short.$1.00 ₩ doz.....40&10%
Pat. Sewing, Long.....₩ doz $1.20
Pat. Peg, Plain Top.₩ gr $10.00...45&10%
Pat. Peg, Leather Top.₩ gr $12.00.45&10%

Halters.

Covert's, Rope, ½ in. Jute.....50&2%
Covert's, Rope, ½ in. Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse and Cattle Ties, 60&10&2%
Covert's Adj. Web Halters.....35&2 %

Hammers—

Handled Hammers—
Maydole's, list Dec. 1, '85..
Buffalo Hammer Co.
Humason & Beckley
Atha Tool Co.
Fayette R. Plumb.
C. Hammond & Son.
Hartford Hammer Co.
Verree.
.....25&10@35% 50@50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles.....20@25
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%

Heavy Hammers and Sledges—
3 lb and under.....₩ lb 40¢
3 to 5 lb.....₩ lb 36¢ 70@70&10%
Over 5 lb.....₩ lb 30¢

Wilkinson's Smiths.....10½@11¢₩ lb

Handcuffs and Leg Irons—See Police Goods,

Handles—

Cross-Cut Saw Handles—
Atkins' No. 1 Loop, ₩ plate, 28¢; No. 3 18¢; No. 6, 16¢; No. 2 and No. 4 Reversible, 18¢.
Boynton's Loop Saw Handles, 50¢....60%
Champion.....15

Iron, Wrought or Cast—
Door or Thumb.

Nos.	0	1	2	3
Per doz.	$0.90	1.00	1.18	1.35 1.50

60&10&10%

Roggin's Latches.....₱ doz 30@35¢
Bronze Iron Drop Latches..₱ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.63; Plate, $1.10; no Plate, $0.88 ..... net
Barn Door, ₱ dos $1.40..... 10&10%
Chest and Lifting..... 70%

Wood—

Saw and Plane.....40&10@40&10&5%
Hammer, Hatchet, Axe, Sledge, &c...40%
Brad Awl..... ₱ gr $2.00
Hickory Firmer Chisel, ass'd..₱ gr 4.50
Hickory Firmer Chisel, large..₱ gr 5.00
Apple Firmer Chisel, ass'd....₱ gr 5.00
Apple Firmer Chisel, large....₱ gr 6.00
Socket Firmer Chisel, ass'd..₱ gr 3.00
Socket Framing Chisel, ass'd.₱ gr 5.00
J. S. Smith & Co.'s Pat File..... 50%
File, assorted..... ₱ gr 2 75 } 40@
Auger, assorted.....₱ gr 5.00 } 40&10%
Auger, large..... ₱ gr 7.00 }
Pat. Auger, Ives'..... 30&10%
Pat. Auger, Douglass..... ₱ set $1.25
Pat. Auger, Swan's..... ₱ set $1.00
Hoe, Rake, Shovel, &c..... 50&10%

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England...60&10&10@70
Samson Steel Anti-Friction..... 55%
Orleans Steel..... 55%
Hamilton Wrought Wood Track..... 55%
U. S. Wood Track..... 65%
Champion..... 60&10%
Rider and Wooster, Medina Mfg. Co.'s list..... 70%
Climax Anti-Friction..... 60%
Climax Anti-Friction for Wood Track55%
Zenith for Wood Track..... 55%
Reed's Steel Arm..... 50%
Challenge, Barn Door..... 50%
Sterling's Imp'ved (Anti-Friction).65&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00..... 50&2%
Cheritree..... 50&10%
Kidder's..... 50&10@60%
The Boss..... 60&10%
Best Anti-Friction..... 60&10%
Duplex (Wood Track)..... 60&10&5%
Terry's Pat., ₱ doz pr. 4 in, $10.00; 5 in. $12.00..... 50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered..... 55@5%
Wood Track Iron Clad, ₱ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50@50&5%
Architect, ₱ set $6.00..... 20%
Eclipse..... 20&10%
Felix, ₱ set $4.50..... 20%
Richards'..... 50@30&10%
Lane's Standard.....50&5@50&10%
Lane's New Standard.....50@50&5%
Ball Bearing Door Hanger..20&10@25&10%
Warner's Pat.....20&10@20&10&10%
Stearns' Anti-Friction.20&10@20&10&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless..... 40@40&5%
American, ₱ set $6.00..... 20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢..... 40%
Paragon, Nos. 1, 2 and 3..... 40&10%
Cincinnati..... 25&10%
Paragon, Nos. 5, 5¼, 7 and 8..... 20&10%
Crescent.....60@60&10%
Nickel Cast Iron..... 50%
Nickel, Malleable Iron and Steel 40%
Scranton Anti-Friction Single Strap33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00..... 45%
Star.....40&10@40&10&5%
May.....50&5@50&10%
Barry, $6.00..... 40&10%

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co.
Blood's.....
Hunt's.....
Hurd's.....
Mann's.....
Peck's.....
Underhill's..... } 40 & 10 @ 50&5 %
Buffalo Hammer Co.....
Fayette R. Plumb.....
C. Hammond & Son.....
Kelly's.....
Sargent & Co.....
P., S. & W. Co.....
Ten Eyck Edge Tool Co.....
Collins..... 10%
Schulte, Lohoff & Co.....50@50&5%

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker.....75&2%
Palmer.....50&5&10%
Seymour..... 70&2%
Nicholson..... 45&10%
Huffer..... 50%
Clark's, Nos. 1, 3, 5, 40 and 50 75&10&5@80%
Clark's Mortise Gravity..... 50%
Sargent's, Nos. 1, 3, 5, 11, 13 75&10@55&10&5%
Sargent's, No. 12..... 77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's
Noiseless.....75&10%
Niagara..... 80%
Buffalo..... 80%
Clark's Genuine Pattern..... 80%
O. S., Lull & Porter..... 75&10%
Acme, Lull & Porter..... 75%
Queen City Reversible....70&10&5@75%
Clark's Lull & Porter, Nos. 0, 1, 1¼, 2, 2½, 3..... 75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $10.50; No. 3, for Brick, $13.50. .....25&2%

Gate Hinges—

Western.....₱ doz $4.40, 60%
N. E.....₱ doz $7.00, 55%
N. E. Reversible.....₱ dos $5.20, 55&10%
Clark's, Nos. 1, 2, 3.....60&10&5%
N. Y. State.....₱ doz $5.00, 55&10%
Automatic.....₱ doz $12.50, 50%
Common Sense.....₱ dos pair $4.50, 50%
Seymour's..... 45&10%
Shepard's.....60&10&5%
Reed's Latch and Hinges. ₱ doz $12.00, 50%

Spring Hinges—

Geer's Spring and Blank Butts.....40%
Union Spring Hinge Co.'s list, March, 880 ..... 20%
Acme..... 30%
J. S.....25&10%
Empire and Crown..... 20%
Hero and Monarch..... 55%
American, Gem, and Star..... 20%
Oxford..... 20%
Barker's Double Acting..... 20&10%
Union Mfg. Co..... 25%
Bommer's..... 30%
Buckman's.....15@20%
Chicago..... 30%
Wiles'..... 10%
Devore's..... 40%
Rex..... 40%
Royal..... 60%
Reliable..... 60%
Champion..... 60%
Bardsley's Patent..... 40%
Stearn's.....50&10%

Wrought Iron Hinges

Strap and T.....70&10%
Screw Hook and Strap..... { 6 to 12 in., ₱ ℔ .4 2-10¢ / 14 to 20 in., ₱ ℔ .3 7-10¢ / 22 to 36 in., ₱ ℔ .3 2-10¢
Heavy Welded Hook..... { 6 to 12 in., ₱ ℔ .4 2-10¢ / 14 to 20 in., ₱ ℔ .3 7-10¢ / 22 to 36 in., ₱ ℔ .3 2-10¢
Screw Hook and Eye..... { ⅛ in., ₱ doz $1.50 / ¼ in., ₱ doz $2.45 / ⅜ in., ₱ doz $3.80 } 10%
Rolled Blind Hinges, Nos. 32 and 34 50&10%
Rolled Blind Hinges, Nos. 232 and 234 55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges { 8, 10 & 12 in., ₱ ℔.....5¢ / "Providence" { over 12 in., ₱ ℔.....4¢

Hoes—

Eye—

D. & H. Scovil.....30%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat. 60&5@ 60&10%
Hubbard & Co., S. & O. Pat.60&5@60&10%
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub.....60@60&10%

Handled—

Garden, Mortar, &c.....70%
Planter's, Cotton, &c.....70%
Warren Hoe.....60%
Magic..... ₱ doz $4.00

Hog Rings and Ringers—See Rings and Ringers.

Hoisting Apparatus—See Machines, Hoisting.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag.

Sprengle's Pat.....₱ dos $18.....60%

Bit.

Extension, Barber's, ₱ dos $15.00.....40@40&10%
Ives, ₱ doz $20.00.....50&5@60&10%
Diagonal..... ₱ dos $24.00, 40%
Angular..... ₱ dos $24.00, 40&5%

File and Tool—

Bals Pat.....₱ dos $4.00; 25%
Nicholson File Holders..... 30%
Dick's Tool Holder..... 30%

Hooks—

Cast Iron—

Bird Cage, Sargent's list..... } 60&10&10%
Bird Cage, Reading..... }
Clothes Line, Sargent's list.. }
Clothes Line, Reading list. 60&10@60&10&10%
Ceiling, Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading..50&10@50&10&10%

Wrought Iron—

Cotton..... ₱ dos $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)..50%
Wrought Staples, Hooks, &c. See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, list April, 1886..... 50%
Wire Coat and Hat, Miles', list April, 1886..... 50%
Indestructible Coat and Hat..... 45%
Wire Coat and Hat, Standard..... 45%
Handy Hat and Coat.....50&10%
Steady Ceiling Hooks.....50&10%
Belt.....80@80&10%
Atlas, Coat and Hat..... 60%

Miscellaneous.

Grass, No. 2, $2.00; No. 3, $2.25; No. 4, $2.50
Nolin's Grass..... ₱ doz $2.25
Bush.....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American..... 50%
Bench Hooks.....See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition.....75@75&10%
Standard..... ....60&10&10@70%
Extra.....50&10@60%
N. Y. B. & P. Co., Para..... 30%
N. Y. B. & P. Co., Extra.....40@40&10%
N. Y. B. & P. Co., Dundee.....60&5%

Huskers—

Blair's Adjustable..... ₱ gr $8.00
Blair's Adjustable Clipper.... ₱ gr 7.00
Hubbard's Solid Steel.....₱ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber.—

Irons.

Sad—

From 4 to 10, at factory....₱ 100 ℔, $2.30@$2.40
Self-Heating..... ₱ doz $9.00 net
Self-Heating, Tailors'.... ₱ doz $18.00 net
Mrs. Pott's Irons.....40@40&10%
Enterprise Star Irons..... 40@40&10%
Cold Handle Sad Irons.....40&10@50%
Ideal Irons new list.50&10@50 & 10&10%
Salamander, Irons..... 25%
B. B. Sad Irons, ₱ ℔.....3 @3¼¢
Combined Fluter and Sad Iron, ₱ doz, $15.00..... 15%
Fox Reversible, Self-Fluter ₱ doz $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England..... 50, 15%
Mahony's Troy Pol. Irons..... 25%
Sensible.....20@20&5%
National Self-Heating..... 30%

Soldering—

Soldering Coppers..... ₱ ℔ 22 @ 23¢
Covert's Adjustable, list Jan. 1, 1880. 35&2%

Irons, Pinking, per dos., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy..... 35%

Kettles—

	Spun.	Stamped.
Brass, 7 to 17 in., ₱ ℔....	24¢	21 ¢
Brass larger than 17 in., ₱ ℔.....	26¢	23½¢

Enameled and Tea—See Hollow-Ware.

Keys—

Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks..... 40%
Hotchkiss, Copper and Tinned..... 40%
Hotchkiss' Pad. and Cab..... 35%
Ratchet Bed Keys..... ₱ doz $4.00, 15%
Wollensak Tinned.....50&10%

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—

Wilson's Butcher Knives.....25@30%
Ames' Butcher Knives..... 25%
Foster Bros.' Butcher, &c..... ...40%
Nichols' Butcher Knives.....40&10%
Ames' Shoe Knives.....20@25%
Ames' Bread Knives. ₱ doz $1.50, 15@20%
Moran's Shoe and Bread..... 20%
Hay and Straw.....See Hay Knives.
Table and Pocket.....See Cutlery.
Corn, Auburn Mfg. Co. Western Pat. $2.00
Corn, Auburn Mfg. Co. Crescent....$3.50

Corn—

Bradley's..... 10%
Wadsworth's..... 25%

Drawing—

Wilherby, P. S. & W, Mix, New Haven..... } ..75 @ 75&10 %
Merrill..... 60&10@60&10&5%
Douglas..... 75@75&5%
Watrous..... 15&10@25%
L. & I. J. White..... 90&5%
Bradley's..... 35%
Adjustable Handle..... 25@35%
Wilkinson's Folding..... 25@35&5%

Hay and Straw—

Lightning. Mfrs'. price ₱ dos $18.00, 25% But jobbers cut this price freely, often selling at $8 @ $8.50.
Wadsworth's.....40&7½@40&10%
Carter's Needle..... ₱ dos $11.00@$11.50
Heath's..... ₱ dos $13.00@13.50
Auburn Hay, Com. and Spear Point..50%
Auburn, Straw..... 40%
Nolin's Hay..... ₱ doz.$8.00 @ $9.00

Mincing.

Am. (3d quality), ₱ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18..... net
Lothrop's..... 30&10%
Smith's, ₱ dos, Single, $2.00: Double, $3 40@45%
Knapp & Cowles.....50&10@60%
Buffalo Adjustable..... ₱ dos $3.00 25%
Buffalo Double Adj'table. ₱ dos $3.00 25%

Knobs—

Door Mineral.....60@65%
Door Por. Jap'd.....70@75%
Door Por. Nickel.....$2.00@2.25
Door Por. Plated, Nickel.....$2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture. Plain.....75¢ gro inch, 10%
Furniture, Wood Screws..... 35&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's..... 70&10%
Picture, Hemacite..... 35&5%
Shutter, Porcelain..... 65&10%
Carriage, Jap..... ₱ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c...40%

Ladles.—

Melting, Sargent's.....55&10%
Melting, Reading..... 35&10%
Melting, Monroe's Pat....₱ dos $4.00, 40%
Melting, P. S. & W..... 35&10@40%
Melting, Warner's..... 30%

Lanterns—

Tubular—

Plain with Guards, ₱ doz.....$4.00@4.25
Lift Wire, with Guards.....$4.50@4.75
Square Plain, with Guards....$4.00@4.25
Sq. Lift Wire, with Guards....$4.25@4.50
Without Guards, 25¢ ₱ doz less.

Miscellaneous.

Police, Small, $6.00; Medium, $7.25; Large, $9.75..... 20@25%

Lawn Mowers—See Mowers, Lawn.

Leaders, Cattle.

Humason, Beckley & Co.'s..... 70%
Sargent's..... 60%&10%
Hotchkiss..... 30%
Peck, Stow & W. Co..... ...60&10%

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
Class 3 and 4, Bronzed Iron..... 50%
Class 3 and 4, Bronze Metal..... 25%
Class 3 and 4, Brass..... 35%
Skylight Lifters..... 35%
Crown, Eagle and Shield..... 50%
Reiher's, list Aug. 1, 1889—
Bronzed Iron Rods.....50&10&10&2%
Brass, Real Bronze or Nickel Plate..50%
Excelsior.....50&10&2%
Shaw's.....50&10%
Payson's Universal.....40&40&10%

Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's Chalk..... 60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25..... 25%
Cotton Chalk..... 55%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; 10% Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₱ gro.....25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50.
Mason's Colored Cotton..... 45%
Wire Clothes.. Nos. 12 to 20 106 ft..... $4 00 $3 50 $3.00
Ventilator Cord, Samson Braided, White or Drab Cotton..₱ doz $7.50, 20%

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin... } List March, '84, rev Jan. 1, '85..33⅓&2%
Deitz, Nos. 36 to 39..... 40%
Deitz, Nos. 51 to 63..... 40&10%
Deitz, Nos. 86 to 96..... 30%
Stoddard Lock Co.....30&33⅓%
"Champion" Night Latches..... 40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....25&2%
"Champion" Cab. and Combin....33⅓%
Yale..... net prices
Romer's..... 25%

Door Locks, Latches, &c.

R. & E. Mfg. Co., list Mar. 30, 1889..... } 60&10@60 &10&10
Mallory, Wheeler & Co., list July, '88..... } Much
Sargent & Co., list Aug. 1, '88 } lower net
Reading Hardware Co., list Feb. 2, '88..... } prices often made.
Brittan, Graham & Mathes, list Jan. 1890..... 60&10&10%
Perkins' Burglar Proof.....60&25%
Plate.....25&2%
Barnes Mfg. Co.....40@40&10%
Yale..... net prices
Deitz Flat Key..... 30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&10%
Romer's Night Latches..... 15%
Shepardson or U. S..... 35%
Seed's N. Y. Hasp Lock..... 25%

Padlocks—

List Dec. 23, '84.....75@75&10%
Brittan, Graham & Mathes..... 75&10%
Yale Lock Mfg. Co.'s..... net prices
Eagle..... 35&2%
Eureka, Eagle Lock Co..... 40&2%
Romer's, Nos. 0 to 91..... 30%
Romer's Scandinavian, &c., Nos. 100 to 505...15%
A. E. Deitz..... 40%
Champion Padlocks..... 40%
Hotchkiss..... 30%
Star..... 45%
Horseshoe..... ₱ dos, $9, 40@40&10%
Barnes Mfg. Co.....40@40&10%
Nock's..... 30%
Brown's Pat..... 25%
Scandinavian.....90@90&10%
E. T. Fraim's Keystone Scandavian: Nos. 110, 120, 130 and 140... ..90&10%
Other Nos..... 85%
Ames Sword Co. up to No. 150..... 40%
Ames Sword Co. above No. 150..... 50%
Slaymaker Barry & Co.
No. 41 line.....45&5%
No. 31 line.....60&5%
No. 21 line.....75&5%

Sash, &c.

Clark's, No. 1, $10; No. 2, $8 ₱ gr.. .33⅓%
Ferguson's..... 33⅓%
Morris and Triumph, list Aug. 10, 1886. 30&25%
Victor.....60&10&2%
Walker's..... 10%
Attwell Mfg. Co.....25&33⅓%
Reading.....60%&10&10%&10&10%
Hammond's Window Springs..... 40%
Common Sense, Jap'd, Cop'd and Br'zed..... ₱ gr $4.00
Common Sense, Nickel Plated ₱ gr $10.00
Universal..... 30%
Kempshall's Gravity..... 60%
Kempshall's Model.....60@60&10%
Corbin's Daisy, list Feb. 15, 1886.....70%
Payson's Perfect.....60@60&10%
Hugunin's Sash Balances.....35&5&2%
Hugunin's New Sash Locks.....25&5&2%
Stoddard "Practical"..... 10%
Ives' Patent.....60&10@60&10&5%
Liesche's, Nos. 100 and 110, ₱ gr $8; 105, $10.00..... 20&10%
Davis, Bronze, Barnes Mfg. Co..... 50%
Champion Safety, list March 1, 1888 55@55&5%
Security..... 70%
Buckeye..... ₱ gro $4.80

Lumber Tools—See Tools, Lumber.

Lustre—

Four-ounce Bottles....₱ dos, $1.75; ₱ gross..... $17.00

Machines.

Boring—	Without Augers.	Upright.	Angular.	
Douglas.....	$5.50	$6.75	.....	50%
Snell's, Nice's Pat.	5.50	6.75	.40&10&10-	
Jennings	5.50	6.75	..45@45&10	
Other Machines...	2.35	2.75	.....	
Phillips' Patent with Augers ...	7.00	7.50	.....	

Fluting.

Knox, 4¼-inch Rolls .....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3¼-inch Roll, $2.15..... 35%
Eagle, 5¼-inch Roll, $2.85..... 35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each..... 35%
Crown Jewel, 6 in .....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each..... 35%
Domestic Fluter..... each, $1.50
Geneva Hand Fluter, White Metal ₱ dos $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; $12.50; 3, $10.00..... 30%
Shepard Hand Fluter, No. 85 ₱ doz $15.30 ..... 40%

Shepard Hand Fluter, No. 110 ₱ doz $11.00 ..... 40%
Shepard Hand Fluter, No. 95 ₱ doz $8.00 ..... 40%
Clark's Hand Fluter, ₱ doz $15.00 ..... 35%
Combined Fluter and Sad Iron, ₱ doz $15.00 ..... 30%
Buffalo ..... ₱ doz $10.00 ..... 10%

Hoisting—
Moore's Hand Hoist, with Lock Brake 20%
Moore's Differential Pulley Block 40%
Energy Mfg. Co's 35%

Mallets.

Hickory ..... 20&10@20&10&10%
Lignumvitæ ..... 20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. ..... 30@30&10%

Mattocks. Regular list ..... 60&5%

Measures—

Standard Fiberware, No. 1, peck, ₱ dozen, $4; ½-peck, $3.50.

Meat Cutters—See Cutters, Meat.

Mills.

Coffee—
Box and Side, List Jan. 1, 1888 ..... 60&2%
American, Enterprise Mfg Co. 50&10@30%
The Swift, Lane Bros ..... 20&10%

Mincing Knives—See Knives, Mincing.

Molasses Gates—See Gates, Molasses.

Money Drawers—See Drawers, Money.

Mowers, Lawn.

Leading makers ..... 60@60&10&5%
Other makers ..... 60&10&5@60&10&10%
Pennsylvania 60%
Continental 60%
New Model ..... 50&10&5%
New Quaker City ..... 60&10&5%
Great American ..... 60&10&5%

Muzzles—

Safety ..... ₱ doz. $3.00, 25%

Nails.

Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, July 15, '89. 70&10&10%
Tack Mfrs.' list ..... 60&10&10%
Wire Nails, Standard Penny.
Card June 1, '89, base ..... $2.40 @ $2.50

Horse—

Nos.	6	7	8	9	10
Ausable	28¢	26¢	25¢	24¢	23¢.

25&10@25&10&10%

Clinton, Fin					10¼ @ 11¢, net
Essex	28¢	26¢	25¢	24¢	23¢.

25&10@25&10&10%

Lyra	25¢	23¢	22¢	21¢	20¢.

40&10&10&50%

Snowden	25¢	23¢	22¢	21¢	20¢.

40&10&10&50%

Putnam	23¢	21¢	20¢	19¢	18¢.

1000 ℔ in year 15%

Vulcan	23¢	21¢	20¢	19¢	18¢..12½&5%
Northwest'n	25¢	23¢	22¢	21¢	20¢.

25@25&5%

Globe	23¢	21¢	20¢	19¢	18¢..20&2½%
Boston	23¢	21¢	20¢	19¢	18¢..20&2½%
A. C	25¢	23¢	22¢	21¢	20¢.

25&10@33⅓&5%

C. B.-K	25¢	23¢	22¢	21¢	20¢.

25&10@33⅓&5%

Champlain	28¢	6d	25¢	24¢	23¢.

25&10&10%

New Haven	28	26¢	25¢	24¢	23¢.

25&10@25&10&10%

Saranac	23¢	21¢	20¢	19¢	18¢...30&10%
Champion	25¢	23¢	22¢	21¢	20¢.

10&10&10%

Capewell	28¢	26¢	5d	24¢	23¢.

35&2@35&10¢

Star	23¢	21¢	20¢	19¢	18¢.

10&10@10&12½&

Anchor	23¢	21¢	20¢	19¢	18¢..35%
Western	23¢	21¢	20¢	19¢	18¢..40&10%
Empire Bronzed					14 ₱ ℔.

Picture—
Brass Head, Sargent's list ..... 50&10&10%
Brass Head, Combination list ..... 50&10%
Porcelain Head, Sargent's list. 50&10&10%
Porcelain Head, Combination list. 40&10%
Niles' Patent 40%

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts—

Nuts, off list Dec. 18, 1889: Square. Hex.
Hot Pressed ..... 5.55¢ 6.10¢
Cold Punched ..... 5.10¢ 5.60¢
In lots less than 100 ℔, ₱ ℔, add ½¢; 1-℔ boxes, add 1¢ to list.

Oakum—
Government ..... ₱ ℔ 7@7½¢
U. S. Navy ..... ₱ ℔ 6@6½¢
Navy ..... ₱ ℔ 5½@5½¢

Oilers—

Zinc and Tin ..... 65@65&10%
Brass and Copper ..... 50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10@10&5%
Malleable, Hammers, Old Pattern, same list 40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass 50%
Olmstead's Tin and Zinc 60%
Olmstead's Brass and Copper 50%
Broughton's Zinc 60%
Broughton's Brass 50%
Gem P. D. & Co. ..... ₱ gro. $2
Steel, Draper and Williams 50%

Openers, Can.

Messenger's Comet ..... ₱ doz $3.00, 25%
American ..... ₱ gross $3.00
Duplex ..... doz 25¢, 15&20%
Lyman's ..... ₱ doz $3.75, 20%
No. 4 French ..... ₱ doz $2.25, 55&60%
No. 5, Iron Handle ..... ₱ gr $6.00, 45&50%
Eureka ..... ₱ doz $3.50, 10%
Sardine Scissors ..... ₱ doz $2.75@3.00
Star ..... ₱ doz $2.75
Sprague, No. 1, $2.00 2, $2.25; 3, $2.50. 50&10&10%
World's Best, ₱ gross, No. 1, $12.00 No. 2, $24.00; No. 3, $36.00 ..... 50&10%
Universal, ₱ doz $3.00 ..... 35&5%
Domestic, ₱ doz $2.50 ..... 40%
Champion ₱ doz $2.00 ..... 60%

Packing, Steam—

Rubber—

Standard ..... 60@60&10%
Extra ..... 50@50&10%
N. Y. B. & P. Co., Standard ..... 50&5%
N. Y. B. & P. Co., Empire ..... 60&10&10%
N. Y. B. & P. Co., Salamander. ₱ ℔ 65¢, 20@20&5%
Jenkins' Standard. ₱ ℔ 80¢, .25@25&5%

Miscellaneous—

American Packing ..... 10¢@11¢ ₱ ℔
Russia Packing ..... 14¢ ₱ ℔
Italian Packing ..... 13¢@14¢ ₱ ℔
Cotton Packing ..... 15¢@17¢ ₱ ℔
Jute ..... 7¢@8¢ ₱ ℔

Padlocks—See Locks.

Pails.

Galvanized Iron—

Quarts	10	12	14
Hill's Light Weight, ₱ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ₱ dz.	3.00	3.25	3.75
Whiting's	2.75	3.00	3.25
Sidney Shephard & Co.	2.35	2.85	3.05
Iron Clad	2.50	2.75	3.00
Fire Buckets	2.75	3.25	3.50

Buckets, see Well Buckets.

Indurated Fibre Ware—25%

Star Pails, 12 qt ..... ₱ doz $6.00
Fire, Stable and Milk, 14 qt .. ₱ doz $7.80

Standard Fibre Ware—

	Plain.	Deer'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No. 1, 12 qt. per doz	4.50	
Fire Pails, No. 2, 14 qt. per doz	5.00	
Sugar Pails	6.00	6.50
Horse Pails	5.00	
Buggy Pails	4.00	
Slop Jars (bal. trap)	8.00	9.00
Chamber Pails, 14-qt	6.50	7.50

Pans.

Dripping.

Small sizes ..... ₱ ℔ 6¾¢
Large sizes ..... ₱ ℔ 5½¢

Fry—

Standard List:

No.	0	1	2	3	4
₱ doz.	$3.00	$3.75	$4.25	$4.75	$5.25
No.	5	6	7	8	
₱ doz.	$6.00	$7.00	$8.00	$9.00	

Polished, regular goods ..... 70&10%
Acme Fry Pans ..... 60&10%

Paper and Cloth—

Sand and Emery—

List April 19, 1886 ..... 50@50&10%
Sibley's Emery and Crocus Cloth 50%

Parers.

Apple.

Advance ..... ₱ doz $4.75
Antrim Combination ..... ₱ doz 5.50
Baldwin ..... ₱ doz 5.25
Champion ..... ₱ doz 7.25
Daisy ..... ₱ doz 4.00
Eureka, 1888 ..... each 17.00
Family Bay State ..... ₱ doz 12.00
Favorite ..... ₱ doz 5.00
Gem ..... ₱ doz 5.25
Gold Medal ..... ₱ doz 4.00
Ideal ..... ₱ doz 4.00
Improved Bay State ..... ₱ doz 30.00
Little Star ..... ₱ doz 4.50
Monarch ..... ₱ doz 13.50
New Lightning ..... ₱ doz 5.50
Oriole ..... ₱ doz 4.00
Penn ..... ₱ doz 4.00
Perfection ..... ₱ doz 4.00
Pomona ..... ₱ doz 4.00
Rocking Table ..... ₱ doz 6.00
Turntable ..... ₱ doz 4.50
Victor ..... ₱ doz 13.50
Waverly ..... ₱ doz 4.00
White Mountain ..... ₱ doz 4.50
72 ..... ₱ doz 4.25
76 ..... ₱ doz 5.75
78 ..... ₱ doz. 6.50

Potato—

White Mountain ..... ₱ doz $5.00@5.50
Antrim Combination ..... ₱ doz $8.00
Hoosier ..... ₱ doz $12.50

Pencils—

Faber's Carpenters' ..... high list 50%
Faber's Round Gilt ..... ₱ gro $8.25
Dixon's Lead ..... ₱ gro $4.50
Dixon's Lumber ..... ₱ gro $6.75
Dixon's Carpenters' ..... 40&10%

Picks—

Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00 ..... 60 @ 60&5%

Picture Nails.—See Nails, Picture.

Pinking Irons.—See Irons, Pinking.

Pins.

Box—

Humason, Beckley & Co.'s ..... 60&10%
Sargent & Co's ..... $17 and $18 ..... 60&10%
Peck, Stow & W. Co ... 50&10@50&10&5%

Curtain—

Silvered Glass ..... net
White Enamel ..... net

Escutcheon,

Iron, list Nov. 11, 1885 .. 50&10@50&10&5%
Brass ..... 60@60&5%

Pipe, Wrought Iron—

List September 18, 1889.

1¼ and under, Plain 47½%
1¼ and under, Galvanized 40%
1½ and over, Plain 60%
1½ and over, Galvanized 47½%
Boiler Tubes, Iron.
1¾ and under 45%
2 to 4 inch 50%
4-inch and larger 60½%

Planes and Plane Irons—

Wood Planes—

Molding ..... 45&2%
Bench, First Quality ..... 55&2%
Bench, Second Quality ..... 60&2%
Bailey's (Stanley R. & L. Co.), ... 40&10%

Iron Planes—

Bailey's (Stanley R. & L. Co.) ..... 40&10@40&10&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 20&10@20&10&10%
Victor Planes (Stanley R. & L. Co.) ..... 20&10@20&10&10%
Steer's Iron Planes ..... 35@35&10%
Meriden Mal. Iron Co.'s ..... 40@40&10%
Davis's Iron Planes ..... 40@40&10%
Birmingham Plane Co ..... 50@50&10%
Gage Tool Co.'s Self-Setting ..... 20&10%
Chaplin's Iron Planes ..... 40@40&10%
Sargent's ..... 30&10@30&10&10%
Standard Tool Co ..... 50@50&5%

Plane Irons—

Butcher's ..... $5.00@$5.25 to 2
Buck Bros 30%
Auburn "Thistle" } ..... 35&2%
Ohio } .....
Sandusky } .....
S. & I. J. White 25%

Plates.

Fellos ..... ₱ ℔ 6¢@6½¢

Pliers and Nippers—

Button's Patent ..... 30&10@40%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in., $21.00 ₱ doz ..... 20&10@33⅓%
Humason & Beckley Mfg. Co. 50@50&10%
Gas Pliers 60%
Gas Pliers, Custar's Nickel Plated. 60&5%
Eureka Pliers and Nippers 40%
Russell's Parallel 25%
P. S. & W. Cast Steel 50%
P. S. & W. Tinners' Cutting Nippers, add 6% dis 10%
Carew's Pat. Wire Cutters 20%
Morrill's Parallel, ₱ doz. $12.00 ..... 30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 40@40&5%

Plumbs and Levels—

Regular List ..... 70&10@70&10&10%
Disston's ..... 45&10%
Pocket Levels ..... 70&10@70&10&10%
Davis Iron Levels 30%
Davis' Inclinometers ..... 10&10%

Poachers.

Egg.

Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $9.00 ..... 25%

Police Goods.

R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $15.00 ₱ doz 10%
Tower's 25%
Daley's Improved Handcuffs: 2 Hands, Polished ₱ doz $45.00; Nickeled, $57.00; 3 Hands, Polished, ₱ doz $72.00; Nickeled, $84.00 ..... 25%
J. P. Lovell's Police Goods 25%

Polish, Metal.

Prestoline ..... 20&10%
Prestoline Paste 33⅓%
Gaston's Silver Compound 33⅓%

Pokes, Animal—

Bishop's I. X. L. ..... ₱ doz $6.00
Bishop's O. K. ..... ₱ doz $5.25
Bishop's Pioneer ..... ₱ doz $3.75
Bishop's American ..... ₱ doz $2.75

Polish. Stove.

Joseph Dixon's ..... ₱ gro $6.00, 10%
Gem ..... ₱ gro $4.50, 10%
Gold Medal ..... ₱ gro $6.00, 25%
Mirror ..... ₱ pro $6.00, —%
Lustro ..... ₱ gro $4.75
Ruby ..... ₱ gro $3.75
Rising Sun, 5 gro lots ..... ₱ gro $5.50
Dixon's Plumbago ..... ₱ ℔ 8¢
Boynton's Noon Day, ₱ gro 13.00
Parlor Pride Stove Enamel. ₱ gro 6 cans
Yates' Liquid, 2 3 5 10 gal. ..5¢
₱ gal ..$0.90 .80 .70 .60
Yates Standard Paste Polish, 10-℔ cans, ₱ ℔ 15¢
Jet Black ..... ₱ gro $3.50
Japanese ..... ₱ gro $3.50
Fireside ..... ₱ gro $2.50
Diamond (K. Enamel ..... ₱ gro $10.00
Bonnell's Liquid Stove Polish. ₱ gro $9.00
Bonnell's Paste Stove Polish. ₱ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans ..... 12½¢
Black Jack Water Paste, 5 and 10 ℔ cans ..... 12½¢
Nickel Plate Paste ..... ₱ gro $6.00

Poppers, Corn—

Round or Square, 1 qt. ₱ gr $10.00@10.50
Round or Square, 1½ qt. ₱ gr $13@15.50
Round or Square, 2 qt. ₱ gr $18.50@19.00

Post Hole and Tree Augers and Diggers—See Diggers, Post Hole, &c.

Potato Parers—See Parers, Potato.

Pots.

Glue—

Tinned 40%
Enameled ..... 40&2%
Family, Howe's "Eureka" 40%
Family, L. F. C.'s "Handy" 50%

Presses.

Fruit and Jelly—

Enterprise Mfg. Co ..... 20&10@30%
Henis ..... ₱ doz $2.50
Shepard's Queen City 40%

Pruning Hooks and Shears.—See Shears.

Pullers.

Nail.

Curtiss Hammer ..... ₱ doz $9.00
Giant, No. 1 ..... ₱ doz. $13.00, 10%
Giant, No. 2 ..... ₱ doz, $15.00, 10%
Pelican ..... ₱ doz, $9.00, 25%

Pulleys—

Hot House, Awning, &c ..... 60&10%
Japanned Screw ..... 60&10%
Brass Screw ..... 60&10%
Japanned Side ..... 66⅔&10%
Japanned Clothes Line ..... 60&10%
Empire Sash Pulley ..... 55@60%
Moore's Sash, Anti-Friction 50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50 ..... 50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 ..... 50%
Hay Fork, "F" Common and Pat. Bushed 20%
Hay Fork, Tarbox Pat. Iron 20%
Hay Fork, Reed's Self-Lubricating 60%
Shade Rack 45%
Tackle Blocks ..... See Blocks
Moore's Anti-Friction 5 in. Wheel, ₱ doz $12.00 40

Pumps—

Cistern, Best Makers ..... 60@60&10%
Pitcher Spout, Best Makers ..... 67½@70%
Pitcher Spout, Cheaper Goods. 70@70&5%

Punches—

Saddlers' or Drive, good, ₱ doz ... 60@65¢
Bemis & Call Co.'s Cast Steel Drive. 50&5%
Bemis & Call Co's Springfield Socket. 50&5%
Spring, good quality ... ₱ doz $2.50@2.60
Spring, Leach's Pat 15%
Bemis & Call Co.'s Spring and Check .. 40%
Solid Tinners', P. S. & W. Co., ₱ doz $1.44, 55%
Tin'rs' Hollow Punches P. S. & W. Co. 20&2%
Rice Hand Punches 15%
Avery's Revolving 40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—

Sliding Door, Wr't Brass, ₱ ℔ 35¢ 15%
Sliding Door, Bronzed Wr't Iron .. ₱ ft. 7¢
Sliding Door, Iron, Painted, ₱ foot 4¢, 40%
Barn Door Hight. In. ½ ¾ 1
Per 100 feet $2.00 2.50 3.10, 10%
R. D. for N. E. Hangers—
Small. Med. Large.
Per 100 feet ... $2.15 2.70 3.25 .. net
Terry's Steel Rail, ₱ foot ..... 4½¢
Victor Track Rail, 7¢ ₱ foot ..... 50&2%
Carrier Steel Rail, ₱ foot ..... 4½¢
Moore's Wrought Iron 25%

Rakes—

Cast Steel, Association goods 70%
Cast Steel, outside goods 60&10@70&5%
Malleable ..... 70@70&5%
Gibbs Lawn Rake ..... $12.00, 50&15
Canton Lawn Rake ..... $9.00, 50&10
Ft. Madison Prize Bow Brace and Peerless 65%
Fort Madison Steel Tooth Lawn Rake, $6.00 ..... 25%

Razor

J. R. Torrey Razor Co 20%
Wostenholme and Butcher, $10.00 to £, 10%
Jordan's AAA1, list Nov. 1, 1889 ..... 30%
Jordan's Old Faithful, list Nov. 1, '89. 50%
Electric ..... List net

Razor Strops—See Strops, Razor.

Rings and Ringers.

Bull Rings—

Union Nut Co 40%
Sargent's ..... 66⅔&10@70&5%
Hotchkiss' low list 30%
Humason, Beckley & Co.'s ..... 70&10%
Peck, Stow & W. Co's .. 50&10@50&10&10%
Ellrich Hdw. Co., White Metal, low list. 50@50&10%

Hog—

Top of the Hill Ringers ..... ₱ doz $2.00
Top of the Hill Rings ..... ₱ doz $1.25
Hill's Improved Ringers. ... ₱ doz $4.25
Hill's Old Style Ringers ..... ₱ doz $2.75
Hill's Tongs ..... ₱ doz $4.50
Hill's Rings ..... ₱ doz bxs $2.15@2.25
Perfect Rings ..... ₱ doz bxs $1.60@1.70
Perfect Ringers ..... ₱ doz $2.15@2.25
Blair's Hog Ringers ..... ₱ doz $2.25@2.50
Blair's Hog Rings ..... ₱ doz 90¢@$1.00
Champion Ringers ..... ₱ doz $2.00
Champion Rings, Double ..... ₱ doz $2.25
Brown's Ringers ..... ₱ doz $2.00
Brown's Rings ..... ₱ doz $1.25@1.30

Rivets and Burrs—

Iron, list Nov. 17, '87 ..... 40%
Copper ..... 50&10@60%
Coppered Iron, Belting Brand 40%

Rivet Sets—See Sets.

Rods—

Stair, Brass ..... 25&2%
Stair, Black Walnut .. .. ₱ doz 40¢

Rollers—

Barn Door, Sargent's list ..... 60&10&10%
Acme Moore's Anti-Friction 55%
Union Barn Door Roller 70%

Rope—

Manufacturers' prices:

Manila, ½ in. and larger	₱ ℔ 15 ¢
Manila, ⅜ in.	₱ ℔ 15½¢
Manila, ¼ and 5-16 in.	₱ ℔ 15¾¢
Manila Tarred Rope	₱ ℔ 14½¢
Manila, Hay Rope	₱ ℔ 15 ¢
Sisal, ½ inch and larger	₱ ℔ 12 ¢
Sisal, ⅜ in.	₱ ℔ 12½¢
Sisal, ¼ and 5-16 in.	₱ ℔ 12¾¢
Sisal, Hay Rope	₱ ℔ 12 ¢
Sisal, Tarred Rope	₱ ℔ 11½¢
Sisal, Medium Lathe Yarn	₱ ℔ 11 ¢

1-℔ coil in 10 days.

Cotton Rope ..... ₱ ℔ 15@18¢ net
Jute Rope ..... ₱ ℔ 7½¢

Wire—

List May 1, 1886.
Iron ..... 32½&2½%
Iron, Galvanized ..... 40&2½%
Cast Steel ..... 40&2½%

Rules—

Boxwood ..... 80&10&10@80&10&10&5%
Ivory ..... 50@50&10%
Starrett's Rules and Straight Edges, Steel ..... 25&10%

Sad Irons—See Irons, Sad.

Sand and Emery Paper and Cloth—See Paper and Cloth, Sand and Emery.

Sash Cord—See Cord, Sash.

Sash Locks—See Locks, Sash.

Sash Weights—See Weights, Sash.

Sausage Stuffers or Fillers—

See Stuffers or Fillers, Sausage.

Saws—

Disston's Circular ..... 45@45&5% } Extras sometimes given by jobbers.
Disston's Cross Cuts ..... 45@45&5% } Extras sometimes given by jobbers.
Disston's Hand ..... 25@25&5% } Extras sometimes given by jobbers.

Atkins' Circular Shingle and Heading 50¢
Atkins' Silver Steel Diamond X Cuts ₱ foot 70¢
Atkins' Special Steel Dexter X Cuts ₱ foot 50¢
Atkins' Special Steel Diamond X Cuts ₱ foot 30¢
Atkins' Champion and Electric Tooth X Cuts ₱ foot 24@25¢
Atkins' Hollow Back X Cuts ₱ foot 18¢
Atkins' Mulay, Mill and Drag 40%
Atkins' One-Man Saw, with handles, ₱ foot 32¢
W. M. & C., Hand 30&5@30&10%
W. M. & C., Champion X Cuts, Regular ₱ foot 24@26¢
W. M. & C. X Cuts, Thin Back ₱ foot 27@29¢
Peace Circular and Mill 45&10%
Peace Hand Panel and Rip 20&10@20&10&10%
Peace Cross Cuts, Standard ₱ foot 25¢
Peace Cross Cuts, Thin Back ₱ foot 27@28¢
Richardson's Circular and Mill 45@45&10%
Richardson's X Cuts, No. 1, 30¢; No. 2, 27¢; No. 3, 24¢

Hack Saws—
Griffin's, complete 40&10@50%
Griffin's Hack Saw, Blades 40&10@50%
Star Hack Saws and Blades 35%
Eureka and Crescent 25%

Scroll—
Lester, complete, $10.00 25%
Rogers, complete, $4.00 25%
Barnes' Builders' and Cabinet Makers', $15 25%
Barnes' Scroll Saw Blades 35%

Saw Frames—See Frames, Saw.

Saw Sets—See Sets, Saw.

Saw Tools—See Tools, Saw.

Sets.

Awl and Tool.
Aiken's Sets, Awls and Tools, No. 20, ₱ doz $10.00 55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9 25@25&10%
Miller's Falls Adj. Tool Hdls. Nos. 1, $12, 2, $18 25%
Henry's Combination Haft ₱ doz $6.50
Brad Sets, No. 42, $10.50; No. 43, $12.50 70&10&5%
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50 30&10%

Nail—
Square ₱ gr., $4.00@$4.25
Round ₱ gr. $3.25
Buck Bros. 27½%
Cannon's Diamond Point ₱ gr., $12, 20%

Rivet.
Regular list 50&10%

Saw—
Stillman's Genuine ₱ doz $5.00@7.75, 40&5%
Stillman's Imita ₱ doz $3.25@5.25, 40&5@40&10%
Common Lever ₱ doz $2.00, 40&5%
Morrill's No. 1, $15.00; Nos. 3&4, $24.00, 40&10@50%
Leach's No. 0, $8.00; No. 1, $15, 15@20%
Nash's 20&10@20&10&10%
Hammer, Hotchkiss $5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. 30&5%
Bemis & Call Co.'s Lever and Spring Hammer 30&5%
Bemis & Call Co.'s Plate 10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine $13.00, 50&10%
Aiken's Imitation $7.00, 55&5%
Hart's Pat. Lever 20%
Disston's Star, ₱ No. 15, $5.50; 20@20&10@20&10%
Atkin's Lever ₱ doz No. 1, $6.00
Atkin's Criterion ₱ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00 40&10%
Avery's Saw Set and Punch 50%
Chieftain H. R. Co.'s Superior ₱ doz $15, 50%

Scales—
Hatch, Counter, No. 171, good quality, ₱ doz $21.00
Hatch, Tea, No. 161 ₱ doz $6.75@$7.00
Union Platform, Plain $2.10@2.20
Union Platform, Striped $2.20@2.30
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka 25%
Chatillon's Favorite 40%
Family, Turnbulls 30@30&10%
Richie Bros.' Platform 40%

Scale Beams—See Beams, Scale.

Scissors, Fluting 45%

Scrapers—
Adjustable Box Scraper (S. R. & L. Co.) $6.50 30&10%
Box, 1 Handle ₱ doz $4.00 10%
Box, 2 Handle ₱ doz $6.00, 10%
Defiance Box and Ship 20&10%
Foot 50&10@60%
Ship, Common ₱ doz $3.50 net
Ship, R. I. Tool Co. 10%

Screen Window and Door Frames—See Frames.

Screw Drivers—See Drivers, Screw.

Screws.

Bench and Hand—
Bench, Iron 55&10@55&10&10%
Bench, Wood, Beech ₱ doz $2.25
Bench, Wood, Hickory 20&10%
Hand, Wood 25&10@25&10&5%
Lag, Blunt Point, list Jan. 1, 1890 75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890 75%
Bed 25&5%
Hand Rail, Sargent's 60%&10%
Hand Rail, H. & B. Mfg. Co 70&10@75%
Hand Rail, Am. Screw Co. 75%
Jack Screws, Millers Falls list 50@50&5%
Jack Screws, P. S. & W. 35%
Jack Screws, Sargent 60&10@60&10&5%
Jack Screws, Stearns' 40@40&10%

Cork—
Humason & Beckley Mfg. Co. 40&10@50%
Williamson's 33⅓@33⅓&5%
Howe Bros & Hulbert 35%

Machine—
Flat Head, Iron 55%
Round Head, Iron 50%

Wood—
List March 1, 1889.
Flat Head Iron 50%
Round Head Iron 40%
Flat Head Brass 45%
Round Head Brass 35%
Flat Head Bronze 45%
Round Head Bronze 35%
Extra 5 @ 10 % often given.
Rogers' Drive Screws 60%&1

Scroll Saws—See Saws, Scroll.

Scythe Snaths—See Snaths, Scythe.

Sharpeners, Knife.

Parkin s.
Applewood Handles ₱ doz $6.00, 40%
Rosewood or Cocobolo ₱ doz $9.00, 40%

Shaves, Spoke.

Iron 45%
Wood 50%
Bailey's (Stanley R. & L. Co.) 40&10%
Stearns' 30&10%
Cincinnati 25&10%

Shears—
American (Cast) Iron 75&10@75&10&5%
Barnard's Lamp Trimmers ₱ doz $3.75
Tinners' 20&2%
Seymour's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's Tailor's Shears 33⅓%
First quality C. S. Trimmers 80&10&10%
Second quality C. S. Trimmers. 80&10@80&10&10%
Acme Cast Shears 10&10%
Diamond Cast Shears 10%
Clipper 10&10%
Victor Cast Shears 75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel 40%
Chicago Drop Forge & F. Co., Solid Steel Forged 60%
Clauss Shear Co., Japanned 70%
Clauss Shear Co., Nickeled, same list 60%
Electric List net

Pruning Shears and Hooks.
Disston's Combined Pruning Hook and Saw ₱ doz $18.00, 20&10%
Disston's Pruning Hook, ₱ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools 40%
Pruning Shears, Henry's Pat, ₱ doz $3.75@4.00 net
Henry's Pruning Shears, ₱ doz $4.25@4.50 net
Wheeler, M. & C. Co.'s Combination, ₱ doz $12.00, 20%
Dunlap's Saw and Chisel, ₱ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2 7.25
P., S. & W. Co. 60%

Tinners', &c.—
Shears and Snips (P. S. & W.) 20@25%
Snips, J. Mallinson & Co. 33⅓%

Sheaves—

Sliding Door—
M. W. Co., list July, 1888 50&10@60&5%
R. & E., list Dec. 18, 1885 55&20%
Corbin's list 60&10&2%
Patent Roller 60&10&2%
Patent Roller, Hatfield's 75%
Russell's Anti-Friction, list Dec. 18, 1885 60&2%
Moore's Anti-Friction 60%

Sliding Shutter—
R. & E. list Dec. 18, 1885 60&10&2%
Sargent's list 60&10%
Reading list 60&10&10%

Ship Tools—
L. & I. J. White 20&5%

Shoes, Horse, Mule, &c.—

Horse—
Burden's, Perkins', Phœnix, at factory. $4.00

Mule—
Add $1 ₱ keg to above prices.

Ox, Wrought—
Ton lots ₱ ₺ 9¢
1000 ₺ lots ₱ ₺ 9½¢
500 ₺ lots ₱ ₺ 10¢

Shot—
(Eastern prices 2¢ off, cash, 5 days.
Drop, ₱ bag, 25 ₺ $1.30
Drop, ₱ bag, 5 ₺ .31
Buck and Chilled, ₱ 25-₺ bag 1.55
Buck and Chilled, ₱ 5-₺ bag .36

Shovels and Spades—
Ames' Shovels, Spades, &c., list Nov. 1, 1885 20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron 50&10%
Griffith's C. S. 60@60&10%
Griffith's Solid C. S. R. R. Goods 50%
Old Colony (Sanford Fork & Tool Co.) 35%
St. Louis Shovel Co. 20@20&7½%
Hussey, Binns & Co. 15@25%
Hubbard & Co. 20@20&7½%
Lehigh Mfg. Co. 50&10%
Payne Pettebone & Son, list January, 1886 30%
Remington's (Lowman's Pat.) 30&10@40%
Rowland's, Black Iron 50&10%
Rowland's Steel 60&5@60&10%

Shovels and Tongs—
Iron Head 60&10@60&10&5%
Brass Head 60&10&10%

Sieves—
Mann's Tin Rim 50&25%
Buffalo Metallic, S. S. & Co. 50&25%
Shaker (Barler's Pat.) Flour Sifters ₱ doz $2.00; ₱ gr $21.60
Electric ₱ gr $21.60
L. & W. Sifters ₱ doz 2.00
Hunter's ₱ doz $2.00
Smith's Adjustable Sifters ₱ doz $2.00
Smith's Adjustable Milk Strainer. ₱ doz $2.00
Smith's Adjustable T. & C. Strainer. ₱ doz. $1.25

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ₱ doz	80¢	$1.00
Mesh 20, Nested, ₱ doz	95¢	1.10
Mesh 24, Nested, ₱ doz	$1.15	1.25

Skeins, Thimble—
Western list 75&5@75&10%
Columbus Wrt. Steel, list Jan. 3, 1889 45&10%
Coldbrookdale Iron Co. 60%
Utica P. S. T. Skeins 60%
Utica Turned and Fitted 35%

Slates—
School, by case 50@50&10%

Snaps, Harness, &c.—
Anchor (T. & S. Mfg. Co.) 65%
Fitch's (Bristol) 50&10%
Hotchkiss 10%
Andrews 50%
Sargent's Patent Guarded 70&10&10%
German, new list 40&10%
Covert 50&2%
Covert, New Patent 50&5&2%
Covert, New R. E. 60&2%
Covered Spring 60&10&10%

Snaths, Scythe.
List 50&10@50&10&5%

Soldering Irons—See Irons, Soldering.

Spittoons, Cuspidors, &c.

Standard Fiberware—
Cuspidors, 8½-inch, ₱ doz., No. 5, $8; No. 5X $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—See Shaves, Spoke.

Spoke Trimmers—See Trimmers, Spoke.

Spoons and Forks—

Tinned Iron—
Basting, Cen. Stamp. Co.'s list 70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list 70&10%
Buffalo S. S. & Co. 33⅓&2%

Silver-Plated—(4 mos. or 5% cash 30 days).
Meriden Brit. Co., Rogers 40, 15, 10&5%
C. Rogers & Bros. 40, 15, 10&5%
Rogers & Bro. 40, 15, 10&5%
Reed & Barton 40&10%
Wm. Rogers Mfg. Co. 40, 15, 10, &5%
Simpson, Hall, Miller & Co. 40, 15, 10&5%
Holmes & Edwards Silver Co. 40, 15, 10, 5&5%
L. Boardman & Son 60%

Miscellaneous.
Holmes & Edwards Silver Co.:
No. 67 Mexican Silver 50&10&5%
No. 30 Silver Metal 50&10&5%
No. 24 German Silver 50&10&5%
No. 50 Nickel Silver 50%
No. 49 Nickel Silver 50&10
German Silver 50@50&5
German Silver, Hall & Elton 50&5% cash
Nickel Silver 50&5@50&10&5% cash
Britannia 60%
Boardman's Nickel Silver 50&5% cash
Boardman's Britannia Spoons, case lots 60&5% cash

Springs, Door.
Torrey's Rod, regular size ₱ doz $1.80
Gray's, ₱ gr., $20.00 20%
Bee Rod ₱ gr., $20.00 20%
Warner's No. 1, ₱ doz, $2.50; No. 2, $3.30 40&10@50%
Gem (Coil), list April 19, 1886 10%
Star (Coil), list April 19, 1886 20%
Victor (Coil) 60@60&10%
Champion (Coil) 60&10@60&10&10%
Philadelphia, 5 in., $5.00; 8 in., $7.75 %
Cowell's No. 1, ₱ doz, $18.00; No. 2, $15.00 50%
Rubber, complete, ₱ doz, $4.50 55&10%
Hercules 50%
Shaw Door Check and Spring 25@30@35%
Elliptic, Concord, Platform and Half Scroll 60@60&5%
Cliff's Bolster Springs 25%

Squares—
Steel and Iron } 80 &10%
Nickel-Plated }
Try Square and T Bevels 60&10@60&10&10%
Disston's Try Square and T Bevels 45&10%
Winterbottom's Try and Miter 30&10%
Starrett's Micrometer Caliper Squares 25%
Avery's Flush Bevel Squares 40%
Avery's Bevel Protractor 50%

Squeezers.

Fodder.—
Blair's ₱ doz $2.00
Blair's "Climax" ₱ doz $1.25

Lemon—
Porcelain Lined, No. 1 ₱ doz $6.00, 25&30%
Wood, No. 2 ₱ doz $3.00, 35%
Wood, Common ₱ doz $1.70@1.75
Dunlap's Improved ₱ doz $3.75, 20%
Sammis No. 1, $5.00; No. 2, $9; 12, $18 ₱ doz. 22&10%
Jennings' Star ₱ doz $2.50
The Boss ₱ doz $2.50
Dean's Nos. 1, ₱ doz $6.50; 2, $3.35; 3, $1.90; Queen, $2.50
Little Giant 50@50&5%
King 40&5%
Hotchkiss Straight Flash ₱ doz $12.00

Standard Fiber Ware—See Ware, Standard Fiber.

Staples.

Blind—
Barbed, ½ in. and larger ₱ ₺ 7@7½¢
Barbed, ⅜ in. ₱ ₺ 8@8½¢
Fence Staples, Galvanized } Same price as B'rb Wire. See Trd. Rep.
Fence Staples, Plain }

Steelyards 40&10@50%

Stocks and Dies—
Blacksmith's
Waterford Goods 40&10&10%
Butterfield's Goods 40&10&10%
Lightning Screw Plate 25@30%
Reece's New Screw Plates 33⅓&5@40%
Reversible Ratchet 30%
Gardner 25%

Stops, Bench.
Morrill's ₱ doz $9, 50%
Hotchkiss's ₱ doz $5, 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's ₱ doz $3 10%
Cincinnati 25&10%

Stone—
Hindostan No. 1, 3¢; Axe, 3½¢; Slips No. 1, 4½¢
Sand Stone ₱ ₺ 2½¢
Washita Stone, Extra ₱ ₺ 20@21¢
Washita Stone, No. 1 ₱ ₺ 15@16¢
Washita Stone, No. 2 ₱ ₺ 11@12¢
Washita Slips, No. 1, Extra ₱ ₺ 37@40¢
Washita Slips, No. 1 ₱ ₺ 25@26¢
Arkansas Stone, No. 1, 4 to 6 in ₱ ₺ $1.50
Arkansas Stone, No. 1, 6 to 9 in ₱ ₺ $1.85
Turkey Oil Stone, 4 to 8 in ₱ ₺ 40¢
Turkey Slips ₱ ₺ $1.00@1.50
Lake Superior, Chase ₱ ₺ 16¢
Lake Superior Slips, Chase ₱ ₺ 31@32¢
Seneca Stone, Red Paper Brand ₱ ₺ 18@20¢
Seneca Stone, High Rounds ₱ ₺ 20@25¢
Seneca Stone, Small Wheels ₱ gro $24.00

Stove Polish—See Polish, Stove.

Stretchers, Carpet.
Cast Steel, Polished ₱ doz $2.25
Cast Iron, Steel Points ₱ doz 80¢
Socket ₱ doz $1.75
Juillard's 25@25&10%

Strops, Razor—
Genuine Emerson 60@60&5%
Imitation " ₱ doz $2.00, 20&10&5%
Torrey's 20%
Badger's Belt and Com ₱ doz $2.00
Lamont Combination ₱ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89 50%
Electric List net

Stuffers or Fillers, Sausage—
Miles' "Challenge," ₱ doz $20, 50@50&5%
Perry ₱ doz, No. 1, $15.00; No. 0, $21.00 50&5@50&10%
Draw Cut No. 4, each $30.00 20%
Enterprise Mfg. Co. 20&10@30%
Silver's 40&10%

Sweepers, Carpet.
Bissell No. 5 ₱ doz $17.00
Bissell No. 7 New Drop Pan ₱ doz $10.00
Bissell, Grand ₱ doz $36.00
Grand Rapids ₱ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic ₱ doz $15.00
Jewel ₱ doz $17.00
Improved Parlor Queen, Nickeled ₱ doz $27.00
Japanned ₱ doz $24.00
Excelsior ₱ doz $22.00
Garland ₱ doz $18.00
Parlor Queen ₱ doz $24.00
Housewife's Delight ₱ doz $15.00
Queen ₱ doz $16.00
Queen, with band ₱ doz $18.00
King ₱ doz $30.00
Weed, Improved ₱ doz $18.00
Hub ₱ doz $16.00
Cog-Wheel ₱ doz $16.00
Conqueror ₱ doz $22.00
Easy ₱ doz $22.00
Monarch ₱ doz $22.00
Goshen ₱ doz $21.00
Advance ₱ doz $18.00
Ladies' Friend, No. 1, ₱ doz, $15.00; No. 2 ₱ doz $16.00
American ₱ doz $15.00
Grand Republic ₱ doz $35.00

Tacks, Brads, &c.—
List Oct. 19, 1889.
Carpet Tacks—
American Iron, Blued 70%
American Iron, Tin'd or Cop'd. 70%
Steel, Plain or Bright 70%
Steel Tinned or Coppered 70%
Swedes Iron, Blued 70%
Swedes Iron, Tinned or Co'd 70%
American Iron Cut Tacks 67½%
Swedes Iron Upholst'rs' Tacks, S. S. 70%
Swedes Iron Upholsterers' Tacks, Tinned, S. S. 70%
Swedes Iron Card and Upholsters' Tacks, Lanc 66⅔%
Swedes Iron Card and Upholsters' Tacks, Tinned, Lanc 66⅔%
Gimp and Lace Tacks Lanc., Swedes Iron 66⅔%
Gimp and Lace Tacks, Lanc., Swedes Iron, Tinned 66⅔%
Gimp and Lace Tacks, S. S. 70%
Gimp and Lace Tacks Tinned, S. S. 70%
Swedes Iron Basket or Trimmers' Tacks, Lanc 66⅔%
Miners' Tacks, S. S. 70%
Bill-Posters' or Railroad Tacks, Lanc., Swedes 66⅔%
Bill-Poster's' or Railroad Tacks, S. S. 70%
Copper Tacks 50%
Copper Finish. & Trunk Nails 50%
Cigar Box Nails 50%
Zinc Glaziers' Points 50%
Picture-Frame Points 50%
Looking-Glass Tacks 50%
Brush Tacks 50%
Tin-Capped Trunk Nails 60%
Finishing Nails 65%
Trunk and Clout Nails, Black and Tinned 66⅔%
Common and Patent Brads 60%
Hungarian Nails 62½%
Basket and Chair Nails 62½%
Leathered Carpet Tacks 40%
Miscellaneous—
Double-Pointed 62½%
Wire Carpet Nails 50&10%
Plymouth Rock Steel Carpet Tacks 35%

Extra 10&10@10&5% —See Trade Report

Wire Brads & Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....30&10%

Tap Borers—See Borers, Tap.

Tapes, Measuring—

American.....33⅓@33⅓&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—

Tin Case.....80@80&10%

Thimble Skeins—See Skeins.

Ties, Bale- Steel

Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—See Shears, Tinners', &c.

Tinware—

Stamped, Japanned and Pieced, list Jan. 20 1887.....70&10%70&10&5%

Tire Benders, Upsetters, &c—
See Benders and Upsetters, Tire.

Tools.

Coopers'—
Bradley's.....30%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Shaver, Cincinnati Tool Co.....20%
Lumber.
Ring Peavies, "Blue Line"...₩ dos $20.00
Ring Peavies, Common.....₩ dos $18.00
Steel Socket Peavies.....₩ dos $21.00
Mall. Iron Socket Peavies...₩ dos $19.00
Cant Hooks, "Blue Line"..₩ dos $16.00
Cant Hooks, Common Finish..₩ dos $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₩ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₩ dos $14.00
Cant Hooks, Clip Clasp, Common Finish.....₩ dos $12.00
Hand Spikes....₩ dos 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₩ dos., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₩ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₩ doz, 12 ft. $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₩ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....₩ dos $13.00
Saw.
Atkins' Perfection.....₩ dos $17.00
Atkins' Excelsior.....₩ dos $6.00
Atkins' Giant.....₩ dos $4.00

Tobacco Cutters—See Cutters, Tobacco.

Transom Lifters—See Lifters, Transom.

Traps—

Game—
Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%

Mouse and Rat—
Mouse Wood, Choker, ₩ dos holes, 11@12¢
Mouse, Round Wire.....₩ doz $1.50, 10%
Mouse, Cage, Wire.....₩ doz $2.50, 10%
Mouse, Catch-'em-alive.....₩ dz $2.50, 15¢
Mouse, Bonanza.....₩ gr $10.00
Mouse Delusion.....₩ gr $10.00@$12.00
Rat, Decoy.....₩ gr $10.00, 10%
Ideal.....₩ gr $10.00
Cyclone.....₩ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₩ dos, 90¢; in full cases, ₩ doz.....75¢
Hotchkiss Imp. Rat Killer..₩ gro $18.50
Hotchkiss New Rat Killer...₩ gro $16.50
Schuyler's Rat Killer.....₩ gro $15.00

Trowels—

Lothrop's Brick and Plastering.....20&10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering, 25@25&10%
Peace's Plastering.....25%
Clement & Maynard's.....20%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%

Triers—

Butter and cheese.....25%

Trimmers, Spoke.

Bonney's.....₩ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₩ dos. 55&10%
Douglas'.....₩ dos $9.00, 20%
Cincinnati.....25%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list, '82.....40%

Tubes, Boiler—

See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ½ ℔ Balls	26¢	34¢
No. 12, ¼ and ½ ℔ Balls	25¢	33¢
No. 18, ¼ and ½ ℔ Balls	22¢	32¢
No. 24, ¼ and ½ ℔ Balls	22¢	32¢
No. 36, ¼ and ½ ℔ Balls	20¢	31¢

No. 264, Mattrass, ¼ and ½ ℔ Balls.52@54¢
Chalk Line, Cotton, ½ ℔ Balls.....25¢
Mason Line, Linen, ½ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ½ ℔ Balls (Spring Twine).....15½¢
3-Ply Hemp, 1 ℔ Balls.....16¢@16½¢
3-Ply Hemp, 1½ ℔ Balls.....15¢@15½¢
Cotton Wrapping, 5 Balls to ℔.....15¢@16¢
2, 3, 4 and 5-Ply Jute, ½ ℔ Balls.....10¢
Wool.....6½¢@6½¢
Paper.....13¢@14¢
Cotton Mops, 6, 9, 12 and 15 ℔ to dos..18¢

Vises—

Solid Box.....50&10@50&10&5%
Parallel—
Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....30@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@30%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....30%
Saw Fitters.
Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....60&10&10%
Hopkins'.....₩ dos $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%
Combination Hand Vises.....₩ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....30&10%

Wagon Boxes—See Boxes, Wagon.

Washer Cutters—See Cutters Washer.

Wagon Jacks—See Jacks, Wagon.

Ware, Hollow, Enameled, &c.

Cast Iron, Hollow—
Stove Hollow-Ware—
Ground.....55&5@60&5%
Unground.....65&10@65&10&5%
White Enameled-Ware—
Maslin Kettles.....60&10&10%
Boilers and Saucepans.....40&5%
Tinned Boilers and Saucepans.....40&5%
Rustless Hollow-Ware.....50@50&5%
Gray Enameled-Ware—
Stove.....50%
Maslin Kettles.....60&10&10%
Boilers and Saucepans.....40&5%
Enameled—
Agate and Granite Ware, list Jan. 1, 1880.....33⅓&10%
Ironclad Enameled Ware...dis 33⅓&10%
Kettles—
Galvanized Tea-Kettles—

Inch	6	7	8	9
Each	55¢	60¢	65¢	75¢

Standard Fiber—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10½ in.	$2.00	$2.25
Wash-Basins, 12 in.	2.25	2.75
Keelers, 11¼ in.		4.00
Cuspidors.		3.00
Spittoons, "Daisy," 8 in.	4.00	4.50
Peck Measure.	4.00	
Half-peck Measure.	3.50	

See also Pails.
Indurated Fiber—25%
Spittoons, No. 2, ₩ doz.....$2.00
Basins, Ringed, ₩ doz., No. 1, $4.80; No. 2, $4.20; No. 3.....$3.60
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₩ nest.....$7.50
Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₩ nest.....$3.70
Butter Bowls 15, 17 and 19-inch (3 pieces), ₩ nest.....$2.25
Liquid Measures, pt., qt., 2 qt. and funnel (4 pieces) ₩ set.....$4.00
Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), ₩ set.....$3 00
See also Pails.
Silver Plated, Hollow—
4 mo. or 5 % cash in 30 days.
Reed & Barton.....
Meriden Britannia Co.....
Simpson, Hall, Miller & Co.....
Rogers & Brother.....
Hartford Silver Plate Co.....
William Rogers Mfg. Co.....
} 40@5%

Washers—

Size.	⅛	5-16	⅜	½	⅝	¾	1
Washers....	6½	5¼	4½	3½	3	3	3

In lots less than 200 ℔, ₩ ℔, add ¼¢, 5-2 boxes 1¢ to list.

Wedges—

Iron.....₩ ℔ 3½¢
Steel.....₩ ℔ 4 ¢

Weights, Sash—

Solid Eyes.....₩ ton $18@$19

Well Buckets, Galvanized—See Buckets, Well, Galvanized.

Wheels, Well.

8 in., $2.25; 10 in., $2.70; 12 in., $3.25

Wire and Wire Goods—

Iron—
Market.
Br. & Ann., Nos. 0 to 18.....72½%
Cop'd, Nos. 0 to 18.....70%
Galv., Nos. 0 to 18.....62½%
Tin'd, Tinned list Nos. 0 to 18.....62½%
Stone,
Br. and Ann'd, Nos. 16 to 18....72½%
Bright and Ann'd, Nos. 19 to 26....75%
Br. and Ann'd, Nos. 27 to 36.....77½%
Tinned.....
Tinned Broom Wire, 18 to 21, ₩ ℔...5½¢
Galvanized Fence, Nos. 8 and 9.....65%
Annealed Fence, Nos. 8 and 9.....75%
Annealed Grade, Nos. 10 to 14.....75%
Brass, list Jan. 18, 1884.....25%
Copper, list Jan. 18, 1884.....25%
Barb Fence.....See Trade Report
Annealed Wire on Spools.....50%
Malin's Steel and Tin'd on Spools.....50%
Malin's Brass and Cop. on Spools.....40%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to £, 30%
Steel Music Wire, Nos. 12 to 20..55¢ ₩ ℔
Picture Wire.....New list 50%
Wire Clothes Lines, see Lines.
Bright Wire Goods—
Standard list.....85%
Wire Cloth and Netting.
Painted Screen Cloth, good quality, ₩ 100 sq. ft., $1.00 @ $1.75
Galvanized Wire Netting.....70&10@75%

Wire Rope—See Rope, Wire.

Wrenches—

American Adjustable.....40%
Baxter's Adjustable "S".....40&10&50%
Baxter's Diagonal.....40&10&50%
Coes' Genuine.....50&3%
Coes' "Mechanics".....50&10&3%
Girard Standard.....65&10%
Lamson & Sessions' Engineers'..60&10%
Lamson & Sessions' Standard...70&10%
P. S. & W. Agricultural.....
Girard Agricultural.....
Lamson & Sessions' Agric'l..
} 75@77&10
Samis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Brigg's Pattern.....25%
Cylinder or Gas Pipe.....40&10%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₩ dos $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....20&10%
Always Ready.....25&3%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....60&3%
Acme, Nickeled.....50&3%
Walker's.....55&3%
Diamond Steel.....55&3%
Cincinnati Brace Wrenches.....15&10%
Cincinnati Monkey Wrenches..15&10%
Tafts' Vise Wrench.....55&10&3%

Wringers, Clothes—

List March 11, 1889, 2% cash.

Wrought Goods—

Staples, Hooks, &c., list Jan. 12, 1886.....80&15@85%

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw..per gal.	62	@	64
Linseed, City, boiled.....	64	@	66
Linseed, Western, raw.....	..	@	60
Lard, City, Extra Winter..	53	@	54
Lard, City, Prime.....	52	@	..
Lard, City, Extra No. 1.....	47	@	50
Lard, City, No. 1.....	42	@	45
Lard, Western, prime.....	..	@	53
Cotton-seed, Crude, prime.	33	@	..
Cotton-seed, Crude, off grades.....	30	@	32
Cotton-seed, Summer Yellow, prime.....	37	@	37½
Cotton seed, Summer Yellow, off grades.....	32	@	36
Sperm, Crude.....	65	@	67
Sperm, Natural Spring.....	6	@	69
Sperm, Bleached Spring....	72	@	74
Sperm, Natural Winter.....	74	@	77
Sperm, Bleached Winter...	79	@	82
Whale, Crude.....	40	@	45
Whale, Natural Winter.....	47	@	48
Whale, Bleached Winter...	50	@	51
Whale, Extra Bleached.....	54	@	55
Sea Elephant, Bleached Winter.....	58	@	60
Menhaden, Crude, Sound...	..	@	25
Menhaden, Crude, Southern	..	@	..
Menh den, Light Pressed..	26	@	27
Menhaden, Bleached W'ter.	30	@	31
Menhaden, Extra Bleached	35	@	36
Tallow, City, prime.....	..	@	46
Tallow, Western, prime....	..	@	..
Cocoanut Ceylon.....	..	@	6
Cocoanut, Cochin.....	..	@	6¼
Cod, Domestic.....	31	@	32
Cod, Foreign.....	33	@	34
Red Elaine.....	31	@	34
Red Saponified.....₩ ℔	4½	@	4½
Bank.....per gal	25	@	30
Straits.....	27	@	28
Olive, Italian, bbls.....	80	@	85
Neatsfoot, prime.....	62½	@	75
Palm, prime, Lagos....₩ ℔	5½	@	6

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test.....per gal	8	@	9
Black, 29 gravity, summer.		@	
Cylinder, light, filtered....		@	
Cylinder, dark, filtered	14	@	20
Cylinder, dard, st'm refined	10	@	18
Paraffine, 23½ @24 gravity.	11	@	12
Paraffine, 25 gravity.....	10	@	11
Paraffine, 28 gravity.....	8½	@	9
Paraffine, red, 21 @ 22 gr'ty	14	@	14½
Paraffine, red, 22½@23 gr'ty	12	@	13

Paints and Colors.

Barytes, Prime White.....₩ ton.	$22.00	@	$23.50
Barytes, Amer. refined...	20.00	@	....
Barytes, Amer. No. 1....	18.00	@	....
Barytes, Amer. No. 2.....	16.00	@	....
Barytes, Amer., off-color.	13.00	@	15.00
Blue, Celestial.....₩ ℔	5½	@	7½
Blue, Chinese.....	45	@	50
Blue, Prussian.....	20	@	35
Blue, Ultramarine.....	7	@	25
Brown, Spanish.....	½	@	1
Brown, Vandyke, Amer..	3	@	3½
Brown, Vandyke, English	6	@	8
Black, American Drop....	8	@	10
Black, English Drop.....	12	@	14
Black, Frankfort, Drop...	5	@	18
Black, Lamp, common....	12	@	18
Black, Lamp, medium....	19	@	25
Black, Lamp, prime.....	27	@	33
Carmine, No. 40, in bulk.	3.10	@	..
Carmine, No. 40, in boxes or barrels.....	3.20	@	..
Carmine, No. 40, in ounce bottles.....	4.20	@	..
Chalk, in bulk.....₩ ton.	2.75	@	3.00
Chalk, in bbls..₩ 100 ℔	.30	@	35
China Clay, English.....₩ ton.	13.50	@	18.00
China Clay, Southern...	10.00	@	11.50
Cobalt Oxide, prep'd....	2.90	@	....
Cobalt Oxide, black.. lots 100 ℔	3.60	@	....
Cobalt, Oxide, black..... less 100 ℔	2.65	@	....
Crocus Martus, Engl.₩ ℔.	1½	@	2½
Crocus, American.....	1½	@	2½
Green, Paris, in bulk....	14	@	14½
Green, Paris, 170 @ 175 ℔ kegs.....	14½	@	15
Green, Paris, small pack.	16	@	21
Green, Chrome, ordinary	8	@	13
Green, Chrome, pure....	23	@	25
Lead, Eng., B.B. white....	9	@	10
Lead, Amn. White, dry or in oil: Kegs, lots less than 1000 ℔..		@	7
Kegs, lots 1000 ℔ to 5 tons...		@	6¼
Kegs, lots 5 tons to 12 tons..		@	6¼
Kegs, lots 12 tons and over..		@	6¼
Lead, White, in oil, 25 ℔ tin pails, add to keg price.		@	½
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....		@	1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.		@	2½
Lead, Red, bbls. and ½ bbls....	6	@	6¼
Lead, Red, kegs.....	6¼	@	7
Litharge, kegs.....	6¼	@	7
Litharge, bbls. and ½ bbls.....	6	@	6¼

TERMS, &c.—Lead and Litharge.—On lots of 1000 ℔ or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	@	1½
Ocher, French Washed.....	1½	@	2½
Ocher, German Washed....	1½	@	3
Ocher, 'American.....	½	@	1¼
Orange Mineral, English...	8½	@	9½
Orange Mineral, French....	9	@	9¾
Orange Mineral, German ..	8½	@	9½
Orange Mineral, American.	8	@	8½
Paris White, English Cliff-stone.....	90	@	1.10
Paris White, American.....	70	@	80
Red, Indian, English.....	5½	@	7
Red, Indian, American.....	2	@	6
Red, Turkey.....	9	@	14
Red, Tuscan.....	9	@	11
Red, Venetian, American... ₩ 100 ℔.	90	@	1.25
Red, Venetian, English....	1.00	@	1.15
Sienna, Italian, Burnt and Powd.₩ ℔	5	@	6¼
Sienna, Ital., Burnt Lumps	1½	@	3½
Sienna, Ital., Raw, Powd..	5	@	6½
Sienna, Ital., Raw Lumps..	2	@	3½
Sienna, American, Raw....	1½	@	1¾
Sienna, American, Burnt and Powdered.....	1½	@	1¾
Talc, French.....	1½	@	1¾
Talc, American.....	1	@	1¼
Terra Alba, Fr'ch, ₩ 100 ℔	72½	@	80
Terra Alba, English.....	80	@	85
Terra Alba, American No. 1	70	@	75
Terra Alba, American No. 2	38	@	40
Umber, Turkey, Bnt. and Powd..... ₩ ℔	3½	@	4
Umber, Turkey Bnt. Ln	2½	@	3
Umber, Turkey, Raw and Powdered.....	3½	@	
Umber Turkey, R'w Lmps	2½	@	2¾
Umber, Turkey, Bnt. Amer.	1½	@	1¾
Umber, Turkey, R'w Amer.	1½	@	1¾
Yellow, Chrome.....	10	@	22
Vermillion, Americ'n Lead..	11½	@	13
Vermilion, Quicks'er, bulk.	72½	@	—
Vermilion, Quicks'er, bags.	73½	@	—
Vermilion, Quicksilver, smaller pkgs.....	77½	@	..
Vermilion, English Import	82	@	85
Vermilion, Imitation, Eng.	8	@	25
Vermilion, Trieste.....	75	@	77
Vermilion, Chinese.....	88	@	90
Whiting, Common..₩ 100 ℔	40	@	45
Whiting, Gilders'.....	50	@	55
Zinc, American, dry....₩ ℔	3½	@	4½
Zinc, French, Red Seal.....	..	@	7½
Zinc, French, Green Seal..	..	@	7½
Zinc, French, V. M. X.....	6	@	6¾
Zinc, Antwerp, Red Seal....	..	@	6¾
Zinc, Antwerp, Green Seal	..	@	7¼
Zinc, German, L. Z. O.....	..	@	6¼
Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over.....	10½	@	10¾
lots less than 1 ton.....	10½	@	11
Zinc, V. M. in Poppy Oil, Red Seal.....	..	@	..
lots of 1 ton and over....	9½	@	10
Lots of less than 1 ton....	9½	@	10¾

DISCOUNTS.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Blue, Chinese.....₩ ℔	35	@	40
Blue, Prussian.....	20	@	45
Blue, Ultramarine.....	12	@	18
Brown, Vandyke.....	7	@	12
Green, Chrome.....	8	@	13
Green, Paris.....	15	@	18
Sienna, Raw.....	7	@	13
Sienna, Burnt.....	7	@	13
Umber Raw.....	7	@	10
Umber, Burnt.....	7	@	10

Glue.

Low Grade.....₩ ℔	8	@	10
Cabinet.....	12	@	14
Medium White.....	13	@	15
Extra White.....	17	@	20
French.....	9	@	20
English.....	10	@	15
Irish.....	12	@	15

CURRENT METAL PRICES.

JUNE 11, 1890.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron:	
⅜ to 2 in. round and square.. 1 to 6 in. x ⅜ to 1 in.	₩ ℔ 2 00 @ 2.10¢
Refined Iron:	
⅜ to 2 in. round and square.. 1 to 4 in. x ⅜ to 1¼ in. 4½ to 6 in. x ⅜ to 1 in.	₩ ℔ 2.20 @ 2.30¢
1 to 6 in. x ¼ and 5-16	₩ ℔ 2.40 @ 2.50¢
Rods—⅝ and 11-16 round and sq.	₩ ℔ 2.30 @ 2.40¢
Bands—1 to 6 x 3-16 to No. 12	₩ ℔ 2.50 @ 2.60¢
"Burden Best" Iron, base price	₩ ℔ 3.00 @ ....¢
Burden's "H. B. & S." Iron, base price	₩ ℔ 2 80 @ ....¢
"Ulster"	₩ ℔ 3.00 @ ....¢
Norway Bars	4.00 @ ....¢
Norway Shapes	5.00 @ ....¢

Merchant Steel from Store.

	Per pound.
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots	2¾¢
Best Cast Steel, base price in small lots	8 ¢
Best Cast Steel Machinery, base price in small lots	5¢

Sheet Iron from Store.

	Common American.		R. G.	Cleaned.
10 to 16	₩ ℔ 3.00	@ 3.00¢	3.50	@ ....¢
17 to 20	₩ ℔ 3.25	@ 3.25¢	3.50	@ 3.75 ¢
21 to 24	₩ ℔ 3.35	@ 3.35¢	3.75	@ ....¢
25 and 26	₩ ℔ 3.45	@	3.75	@ ....¢
27	₩ ℔ 3.55	@ 3.62½¢	4.00	@ ....¢
28	₩ ℔ 3.75	@ ....¢	4.25	@ ....¢
	B. B.		3d qual.	
Galv'd, 14 to 20,	₩ ℔, 5.00	@	4.75¼	@ ....¢
Galv'd, 21 to 24,	₩ ℔, 5.37½	@	5.12½	@ ....¢
Galv'd, 25 to 26,	₩ ℔, 5.75	@	5.50	@ ....¢
Galv'd, 27	₩ ℔, 6.12½	@	5.85½	@ ....¢
Galv'd, 28	₩ ℔, 6.50	@	6.23	@ ....¢
Patent Planished	₩ ℔ A 10¢		B, 9¢	
Russia	₩ ℔ 9¼¢	@ 10¢		
American Cold Rolled B. B.	₩ ℔ 5¢	@ 7¢		
Craig Polished Sheet Steel	₩ ℔, 8¼¢			

English Steel from Store.

Best Cast	₩ ℔ 15 ¢
Extra Cast	₩ ℔ 16½ @ 17 ¢
Swaged, Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 15 ¢
Blister, 1st quality	₩ ℔ 12 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 15 ¢
2d quality	₩ ℔ 14 ¢
3d quality	₩ ℔ 12½¢
R. Mushet's "Special"	₩ ℔ 45 ¢
" " "Titanic"	₩ ℔ 20 ¢

METALS.

Tin.

	Per ℔
Banca, Pigs	22½¢
Straits, Pigs	22¾¢
Straits in Bars	25 ¢

Tin Plates.

Charcoal Plates.—Bright.

		Per box.
Melyn Grade	IC, 10 x 14	@ $6.25
" "	IC, 12 x 12	@ 6.50
" "	IC, 14 x 20	@ 6.25
" "	IC, 20 x 28	@ 12.75
" "	IX, 10 x 14	@ 7.75
" "	IX, 12 x 12	@ 8.00
" "	IX, 14 x 20	@ 7.75
" "	IX, 20 x 28	@ 15.50
" "	DC, 12½ x 17	@ 5.75
" "	DX, 12½ x 17	@ 7.25
Calland Grade	IC, 10 x 14	@ 6.25
" "	IC, 12 x 12	@ 6.50
" "	IC, 14 x 20	@ 6.15
" "	IX, 10 x 14	@ 7.40
" "	IX, 12 x 12	@ 7.65
" "	IX 14 x 20	@ 7.40
Allaway Grade	IC, 10 x 14	@ 5.35
" "	IC, 12 x 12	@ 5.50
" "	IC, 14 x 20	@ 5.35
" "	IC, 20 x 28	@ 10.75
" "	IX, 10 x 14	@ 6.50
" "	IX, 12 x 12	@ 6.65
" "	IX, 14 x 20	@ 6.50
" "	IX, 20 x 28	@ 13.25
" "	DC, 12½ x 17	@ 5.00
" "	DX, 12½ x 17	6.00 @ 6.00

Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20		@ $5.12½
	10 x 20	@ 7.25
	20 x 28	@ 10.25
	IX, 10 x 14, 14 x 20	@ 6.00
BV Grade.—IC, 10 x 14, 14 x 20		@ 4.87½

Charcoal Plates.—Terne.

Dean Grade.—IC, 14 x 20		@ $5.00
	20 x 28	@ 10.00
	IX, 14 x 20	@ 5.80
	20 x 28	@ 11.60
Abecarse Grade.—IC, 14 x 20		@ 4.85
	20 x 28	@ 9.87
	IX, 14 x 20	@ 5.80
	20 x 28	@ 11.60

Tin Boiler Plates.

I CX, 14 x 28	112 sheets	$13.00 @ $13.00
I CX, 14 x 28	112 sheets	@ 13.25
I XX, 14 x 31	112 sheets	@ 14.75

Copper.

Duty: Pig, Bar and Ingot, 4¢; Old Copper, 3¢ ₩ ℔. Manufactured (including all articles of which Copper is a component of chief value), 45 ¢ ad valorem.

Ingot.

Lake	@ 18¾¢
Baltimore Grade	@ 18¾¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, December 5, 1889, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		22	22	22	23	24	25	28	30
30		72	22	22	22	23	25	27	31	....
36	96		22	22	22	24	26	30	33	....
36		96	22	22	23	25	27	31	35	....
48	96		22	22	24	26	28	32	....	....
48		96	22	22	25	27	29	33	....	....
60	96		22	22	27	29	34	....	....	....
60		96	22	23	28	31	....	....	....	....
84	96		23	24	29	34	....	....	....	....
84		96	24	25	30	35	....	....	....	....
Over 84 in. wide			25	27	....	....	....	....	....	....

All Bath Tub Sheets	16 oz.	14 oz.	12 oz.	10 oz
Per pound	$0.25	0.27	0 29	0.32

Bolt Copper, ⅛ inch diameter and over, per pound ..... 22¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 60 inches diameter, up to 96 inches diameter, inclusive, 5 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 96 inches diameter, 6 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Segment and Pattern Sheets, 3 cents per pound advance over price of sheets required to cut them from.

Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, 1 cent per pound over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, 2 cents per pound over the foregoing prices.

Copper Bottoms, Pits and Flats.

	Per pound.
14 ounce to square foot and heavier	26¢
12 ounce and up to 14 ounce to square foot	27¢
10 ounce and up to 12 ounce	29¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each	8¢
Tinning sheets on one side, 30 x 60 each	30¢
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each	12¢
Tinning sheets on one side, other sizes, per square foot	2½¢

For tinning both sides double the above prices.

Planished Brass and Copper.

14 x 48.

14 and 16 oz. and heavier	31¢. By the case...30¢ ₩ ℔
12 oz. and lighter	33¢. By the case...32¢ ₩ ℔

24 x 48 and 30 x 60.

14 and 16 oz. and heavier	44¢. 12 oz.....37¢ ₩ ℔

Seamless Brass and Copper Tubes.

O. G.	N. G.	⅜	¼	⅝	½	⅝	¾	1	1¼
8-14	6-12	37	33	30	29	28	27	24	
15	13	38	33	31	30	29	28	25	
16	14	39	34	32	31	30	29	25	
17	15	40	35	33	30	31	30	26	
18	16	42	36	34	32	31	30	27	
19	17	43	37	35	34	33	32	29	
20	18-19	44	39	37	36	35	34	31	
21	20	46	41	39	38	37	36	34	
22	21	48	42	40	39	38	37	36	
23	22	50	44	42	41	40	39	39	
24	23	53	46	44	43	41	40	41	
25	24	56	49	46	45	44	43	45	

Copper Bronze and Gilding Tube, 3¢ ₩ ℔ additional.

Brazed Brass Tubing. (To No. 20, inclusive.

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch	45¢
Plain, 5-16 inch	45¢
Plain, ¼ inch	60¢
Plain, 3-16 inch	$1.00
Plain, ⅛ inch	1.50
Fancy Tubing, Brass, to No. 20, inclusive	45¢ ₩ ℔
Bronze Tubing, 2¢ ₩ ℔ more than Brass.	
Discount from list	25 @ ... %

Roll and Sheet Brass.

Discount from list ..... 25 %

High Brass Rods.

Over 1 inch diameter	27¢
¼ inch to 1 inch diameter, both inclusive	24¢
No. 8 and less than ¼ inch diameter	26¢
Smaller than No. 8	30¢

Hexagon, Octagon and Square, 2¢ ₩ ℔ advance over Round Rods.

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 ℔.

Western Spelter	6¼¢
"Bertha"	8¢

Zinc.

Duty; Sheet, 2½¢ ₩ ℔.

600 ℔ casks	6¼¢
Per ℔	7¼¢

Lead.

Duty: Pig, $2 ₩ 100 ℔. Old Lead, 2¢ ₩ ℔. Pipe and Sheets, 3¢ ₩ ℔.

American	4½¢
Bar	5 ¢
Pipe, subject to trade discount	6⅓
Tin-Lined Pipe, subject to trade discount	7
Block Tin Pipes, subject to trade discount	40
Sheet, subject to trade discount	7¼

Solder.

½ @ ½ (Guaranteed)	15 ¢
No. 1	12 ¢
Extra Wiping	11½¢ @ 12 ¢

The prices of the many other qualities of solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson	₩ ℔ 24¢
Hallett's	" 21¢

ALUMINUM.

Prices in Ingots.

$2.00 ₩ ℔ in lots of 1000 ℔ and over.
$2.25 ₩ ℔ in lots of 500 ℔ and over.
$2.50 ₩ ℔ in lots of 100 ℔ and over.

Prices Per Pound on Rolled Sheets.

(Brown & Sharpe, Standard Gauge.)

Wider than / And including	2 in. 10 in.	10 in. 14 in.	14 in. 18 in.	18 in. 22 in.	22 in. 24 in.
Up to No. 20 inclusive	$2.50	$2.60	$2.80	$3.00	$3.20
Nos. 21, 22, 23 and 24	2.60	2.70	2.90	3 10	3.30
Nos. 25 and 26	2.70	2.80	3.00	3.20	3.40
Nos. 27 and 28	2.80	2.90	3.10	3.30	3.50

Sheets, thinner than No. 28 gauge and wider than 24 inches, special prices not less than $5 per pound.
Add 5c cents per pound for sheets cut to particular widths and lengths.
Sheets rolled to .001 in. and under, 50 cents per ounce.
Leaf in books, 20 cents per book; $2 per pack of 10 books, sheets 5 x 5 inches.

Aluminum Tubing.

From $4 per pound upward, according to size and thickness of walls.

Aluminum Castings.

From 50 cents upwards per pound extra over the cost of the metal in ingots, according to the number wanted, weight, the difficulty of casting, cost of patterns, &c.

Aluminum Wire in Coils.

(Brown & Sharpe, Standard Gauge.)

	Per ℔
All numbers up to No. 14 (.064 in.) inclusive	$5.00
Nos. 15 (.05706 in.) to 22 (.0z534 in.) inclusive	3.25
Nos. 23 (.02571 in.) and 24 (.0201 in.) inclusive	3.50
Nos. 25 (.0179 in.) and 26 (.01594 in.) inclusive	3.75
Nos. 27 (.014195 in.) and 28 (.012641 in.) inclusive	4.00
Nos. 29 (.011257 in.) and 30 (.010023 in.) inclusive	4.25
No. 31 (.008928 in.)	4.50
No. 32 (.00795 in.)	4.75
No. 33 (.00708 in.)	5.00
No. 34 (.00630 in.)	5.25
No. 35 (.00561 in.)	5.75
No. 36 (.00500 in.)	6.25
No. 37 (.00445 in.)	7.00
No. 38 (.003965 in.)	8.50
No. 39 (.003531 in.)	12.00
No. 40 (.003144 in.)	16.00

Spooling, on 1-pound spools, 15 cents per pound extra.
Spooling, on 10-pound spools, 5 cents per pound extra.

A Southern Machine Works.

Among the many striking evidences of the recent industrial development of the South, has been the entrance of the Richmond Locomotive and Machine Works into the ranks of the great shops capable of building the large engines and machinery for the Navy. This establishment has been considerably enlarged during the past few years, and some time since received the contract for building the machinery, engines and boilers for the United States battle ship "Texas," the designs for which machinery were purchased in England. It is just to state, however, that these designs had hardly been received in the drawing office before American ingenuity and skill suggested improvements and corrections in them in minor details, all of which were approved by the Government.

With a view to familiarizing himself with the progress and present status of the "largest works of its class south of the Potomac," a representative of *The Iron Age* visited Richmond for the purpose of examining the works. The plan drawing presented on the opposite page will act as a guide in accompanying him in a tour of the works. Starting from the offices, the pattern shop is first entered, where patterns of all the castings are first made in wood. In one corner stood the huge blades of the propeller for the "Texas," and all around could be seen special tools and machinery, band and circular saws, &c., all of the latest improved design for this class of work. Next in order comes the smith shop which is equipped with 17 forges, 2 steam hammers and all the necessary bolt cutting and other appliances. A large number of men were at work in this shop, some were forging for locomotives, others working exclusively on marine work, others dressing tools. The entire area is well commanded by cranes.

Adjoining the blacksmith shop, is the brass foundry, with 17 furnaces. By an ingenious arrangement, the waste heat of these furnaces has been utilized for the core ovens. The brass foundry was found to contain a large stock of valuable material, mostly brass castings of difficult shapes for the "Texas." The foundry has recently been supplied with a heavy crane, additional furnaces and large core ovens, and is now able to compete with any of the largest establishments in the country. Beyond the brass foundry, in the same l., lies the iron foundry, equipped with two cupolas. The space in front of each, is commanded by two large cranes. In addition to which there is a traveling crane. In one corner is placed gear molding machinery of recent design. There are but few of these machines in this country, and gears molded by this process are mathematically true and as accurately pitched as cut gears, and will wear better, since the surfaces of castings is harder than the metal exposed by cutters. In this building is also done the "loom molding."

The pattern storage house was next visited. This is a three story brick building, in which the patterns of all work done in the shop are kept. Some of them are of great value, and the stock of them is constantly increasing. The whole of this building is surmounted by a large water tank, which is used to supply the entire works with water. Not far off is a building, in which finished machinery, hangers, pulleys and all saw mill machinery is kept. A few yards off from the pattern storage house is situated the locomotive paint shop, where locomotives are given the finishing touches before being sent out. Three railroad tracks run into this building, which is large enough to accommodate six engines and tenders at one time. On leaving the locomotive paint shop, on the way to the machine shop, we pass by a large pickling tank, in which it has been found necessary to immerse the large plates for use in the "Texas" boilers, in order to remove the mill scale and keep them from corroding. In this connection, we might say that this is one of the many rigid tests which these plates have to stand, and it is necessary for them to come out of this acid without showing a defect, before they can be passed by the inspectors.

In the machine shop are the big double-headed slotting machines, which take in four locomotive frames at once; the planers that prepare the facing on the frames, the drilling machines, with three and four spindles at work at one time; the lathes, turning all sorts of axles, piston rods, valve stems, &c.; another lathe which takes in an axle with two locomotive drivers attached, turning both wheels at once, with an arrangement to bore holes for the crank pins at exactly right angles to each other. Crossing over a network of tracks, we pass from the machine shop into the boiler shop. Steel plates 6 feet wide by 22 feet long and $1\frac{5}{16}$ inches thick, weighing about 7000 pounds, are handled. This shop is one of the finest equipped of the kind in the South. There are three hydraulic riveting machines, one with a 6-foot gap and two with 8-foot gaps. Each one of these riveters is supplied with a 20-ton hydraulic crane to raise and lower the boilers as they are being riveted. Then there are puncning machines, which can punch holes through steel plates $1\frac{1}{2}$ inches thick, also the large shears that cut heavy sheets of iron or steel. Further on are a set of vertical rolls, which are used for straightening the large plates for the Texas boilers. In the new boiler shop extension are the two hydraulic flanging machines, and adjacent to them is a new furnace of very neat design, used for heating the plates to be flanged and for annealing them.

At the lower end of the boiler shop, and extending north the entire length of the establishment, in fact forming the main building of the works, is the erecting shop, 43 x 300 feet. This shop is where all the machinery is given its last finishing touches before being sent out, the boilers provided with fittings, the engines being tested, &c. The entire area of this shop is commanded by a 15-ton traveling crane. At the time five or six locomotives were in all stages of construction, tires being heated by gas jets for the purpose of being shrunk on the wheels, the valves of a locomotive being set, the truck for a tender being built and two locomotives for the Chesapeake and Ohio Railroad being repaired.

The whole establishment was pervaded by an air of neatness and discipline, and it has been said by competent judges that it is one of the best conducted works in the country. The workmen have a beneficial society, which pays the family of the member $3 per week in case of sickness and so much in case of the death of the member. There is also a society known as the Ladies' Aid Society of the Richmond Locomotive and Machine Works, which is in its operation, auxiliary to the male organization.

The works, originally started in Richmond by Tanner & Delaney, were burnt and were then rebuilt, after reorganization, at the present site. There are now under a roof 16 acres. The company had made a specialty of plain slide-valve engines, ranging in size from 5 inches diameter and 7-inch stroke to 14 inches diameter and 20-inch stroke. They make also a range of improved stationary engines from 7 x 12 to 24 x 36; portable engines from 5 to 40 horse-power; a standard tubular boiler, with full arched front; locomotive boilers and standard vertical boilers. They also make a specialty of locomotives. Another line which has been developed by them extensively is a pole roll locomotive of special design, with the equipment necessary for logging roads.

Valuation of Manufacturing Plants in Pittsburgh.

The valuations obtained by the assessors in Pittsburgh for taxation purposes afford an approximate idea of the enormous investments in that city. The following names comprise the most important of a list filling nearly three double columns in the local newspapers. The annual tax for 1890 makes an aggregate of $630,583, an increase of $73,000 as compared with the previous year:

Byers, A. M. & Co	$1,033,000
Baird, U., Machinery Co	200,000
Best, Fox & Co	200,000
Columbia Iron & Steel Co	100,000
Crescent Steel Co	905,000
Duquesne Tube Co	161,797
Gusky, J. M	1,550,000
Holmes, N. & Son	1,044,798
Kelly, Geo. A., & Co	574,000
Anderson, DuPuy & Co	1,000,000
Chess, Cook & Co	84,960
Dilworth, Porter & Co	891,343
Logan, Gregg & Co	500,997
Pennsylvania Tube Works	2,120,000
A. Garrison Foundry Co	426,596
Heinz, H. J. & Co	333,333
Johnson, Eagye & Earl	812,000
Johnson & Laughlin	4,550,837
Kelly, Jones & Co	100,000
Bindley Hardware Co	600,000
Bailey, Farrell & Co	350,000
Bovard, Rose & Co	254,000
Charlotte Furnace Co	50,000
Carnegie Bros. & Co	675,889
Carnegie, Phipps & Co	4,934,303
Demmler Bros	283,000
Ewart, S. & Co	1,000,000
Horne, Jos. & Co	4,321,200
Hussey, C. G. & Co	618,779
Collins Mfg. Co	50,000
Dilworth Bros	2,700,000
Haworth & Dewhurst	800,000
Jarecki Mfg. Co	250,000
Lloyd, H., Son & Co	435,377
Laird, W. M	408,000
Linden Steel Co	838,932
Marvin, S. S	608,802
McClintock, Oliver & Co	495,760
Porter, H. K. & Co	428,585
Porter & Donaldson	600,000
Taylor, Son & Co	418,473
Pennsylvania Drop Forging Co	125,000
Lockhart Iron and Steel Co	100,000
McKay, John	700,000
Standard Oil Co	967,500
Speer, A. & Sons	207,706
Carrie Furnace Co	200,000
Westinghouse Electric Co	1,500,000
Howe, Brown & Co	912,915
Hainsworth Steel Co	200,000
Hussey, Binns & Co	220,650
Ireland & Hughes Tool Works	78,486
Iron and Steel Band Co., Limited	50,000
Moorhead, McCleane & Co	2,000,000
Carbon Iron Co	100,000
Iron City Smelting and Refining Co.	150,000
Pittsburgh Bridge Co	220,347
Seaman, Sleeth & Black	382,000
Sheffler Bridge Co	325,000
Keystone Bridge Co	1,985,000
Fisher Foundry and Machine Co	125,904
Lewis Foundry and Machine Co	241,228
Clinton Iron and Steel Co	100,000
Mackintosh, Hemphill & Co	714,080
Shoenberger & Co	2,215,100
Shoenberger, Speer & Co	194,000
Zug & Co	760,000
Marshall Foundry and Construction Co	350,000
Pittsburgh Steel Casting Co	170,842
Park Bros. & Co	2,000,000
Scaife Foundry and Machine Co	150,000
Totten & Hogg	104,553
Westinghouse Machine Co	536,937
Keystone Rolling Mill	600,000
Clark, Wm., Son & Co	700,000
Iron City Tool Works	150,000
Keystone Smelting Co	50,000
Republic Iron Works	1,500,000
Oliver Iron and Steel Co	1,520,646
Oliver & Roberts	1,200,000
Phillips, Nimick & Co	1,000,000

The list includes none who made a return for less than $50,000.